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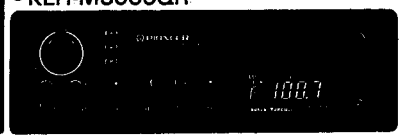
Service Manual

• KEH-M3000QR



ORDER NO.
CRT1282

MULTI-CD CONTROL FM/AM TUNER DECK AMPLIFIER

KEH-M3000QR UC

KEH-M3002QR ES

MULTI-CD CONTROL FM/MW/LW TUNER DECK AMPLIFIER

KEH-M3000SDK WG

KEH-M3000B EW, IT

Note:
• See the separate manual CX-166 (CRT1094) for the cassette mechanism description.

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1. SAFETY INFORMATION

CAUTION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5). When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

WARNING!

Lithium batteries. Danger of explosion. Replacement must be done by qualified personnel and only by following the instructions given in the service manual.

This warning is stated on the product or in the operating instructions. When replacing the lithium batteries, follow the note below.
Dispose of the used battery promptly. Keep away from children. Do not disassemble and do not dispose of in fire.
The battery used in this device may present a fire or chemical hazard if mistreated. Do not recharge, disassemble, heat above 100°C or incinerate. Replace only with the same Part Number. Use of another battery may present a risk of fire or explosion.

Note: The lithium battery installation position is shown in the exploded view and the P.C. board pattern.

ADVARSEL!

Lithiumbatteri — Eksplosionsfare ved fejlagtig håndtering. Udskiftning må kun ske med batteri af samme fabrikat og type. Levér det brugte batteri tilbage til leverandøren.

Denne advarsel or angivet på produktet eller i brugsvejledningen. Ved udskiftning af lithium batterierne følges nedenstående anveisning.
Batterierne må kun udskiftes med batterier af samme type og mærke.

VARNING

Explosionsfara vid felaktigt batteribyte. Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren. Kassera använt batteri enligt fabrikantens instruktion.

Denna varning finns på apparaten eller i bruksanvisningen. Följ nedanstående anvisningar vid byte av litiumbatterier.
Batterierna får endast bytas ut mot litiumbatterier av samma typ och fabrikat.

2. SPECIFICATIONS

General
Power source ..... 14.4 V DC (10.8 — 15.6 V allowable)
Grounding system ..... Negative type
Max. current consumption ..... 7.5 A
Dimensions (chassis)..... 180 (W) x 50 (H) x 150 (D) mm
(front face) ..... 188 (W) x 58 (H) x 13 (D) mm
Weight ..... 1.4 kg

Amplifier
Maximum power output ..... 25 W x 2 (EIAJ)
Continuous power output ..... 11 W x 2 (1% dist. at 1 kHz)
Load impedance ..... 4 Ω (4—8 Ω allowable)
Max. output level/output impedance (pre out) .. 250 mV/1 kΩ
Tone controls (bass)..... ± 10 dB (100 Hz)
(treble)..... ± 10 dB (10 kHz)
Loudness contour..... +12 dB (100 Hz), +7 dB (10 kHz)
(volume: -30 dB)

Tape player
Tape ..... Compact cassette tape (C-30 — C-90)
Tape speed ..... 4.76 cm/sec. (+0.14 cm/sec., −0.05 cm/sec.)
Fast forward/rewind time ..... Approx. 100 sec. for C-60
Wow & flutter ..... 0.13% (WRMS)
Frequency response ..... 40 — 14,000 Hz (± 3 dB)
Stereo separation ..... 45 dB
Signal-to-noise ratio ..... 55 dB (IEC-A network)

FM tuner
Frequency rang (EW, IT, ES, WG)..... 87.5 — 108 MHz
Frequency range (UC)..... 87.9—107.9 MHz
Usable sensitivity... 11 dBf (1.0 μV/75 Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity ..... 16 dBf (1.7 μV/75 Ω, mono)
Signal-to-noise ratio ..... 70 dB (IEC-A network)
Distortion ..... 0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response ..... 30 — 15,000 Hz (± 3 dB)
Stereo separation ..... 40 dB (at 65 dBf, 1 kHz)

MW tuner
Frequency range (WG, EW, IT, ES) ..... 531—1,602 kHz
Frequency range (UC, ES)..... 530—1,710 kHz
Usable sensitivity..... 18 μV (25 dB) (S/N: 20 dB)
Selectivity ..... 50 dB (± 9 kHz)

LW tuner (WG, EW, IT)
Frequency range..... 153 — 281 kHz
Usable sensitivity..... 30 μV (30 dB) (S/N: 20 dB)
Selectivity ..... 50 dB (± 9 kHz)

Note:
Specifications and the design are subject to possible modification without notice due to improvements.

3. DISASSEMBLY

• **Quick Release Handle Assy**
1. Remove two screws.
2. Remove quick release handle assy.

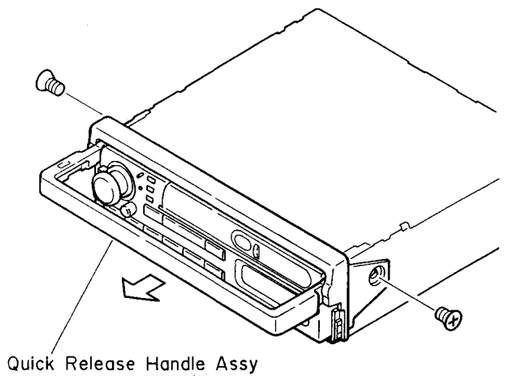


Fig. 1

• **Case**
1. Insert and turn a flat screwdriver to remove case.
2. Raise case to remove.

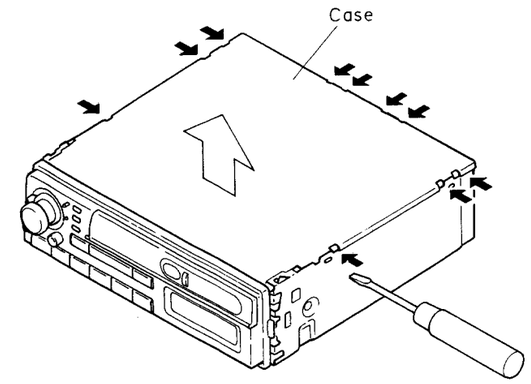


Fig. 2

• **Grille Assy**
1. Remove four knobs.
2. Press tabs at three locations indicated by arrows, and pull out grille assy.

• **Cassette Mechanism Assy**
1. Disconnect two connectors.
2. Remove four screws, and then remove cassette mechanism assy.

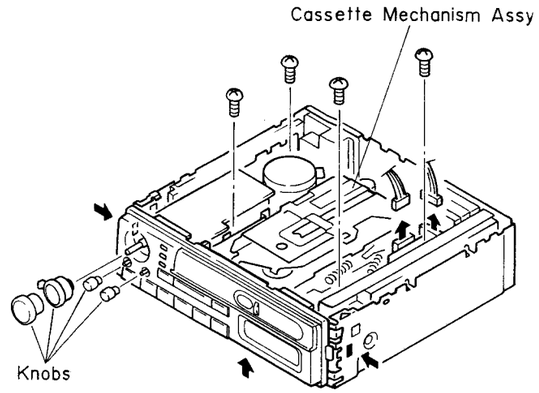


Fig. 3

• **Chassis Unit**
1. Remove two screws A and four screws B.
2. Unbend tab at location indicated by arrow.
3. Disconnect connector.
4. Raise up on tuner amp unit to remove it from chassis unit. At this time, disconnect cord from chassis unit.

Note:
When replacing the cord assy after it has been removed, apply some paint to screw after screwing it in to prevent it from loosening.

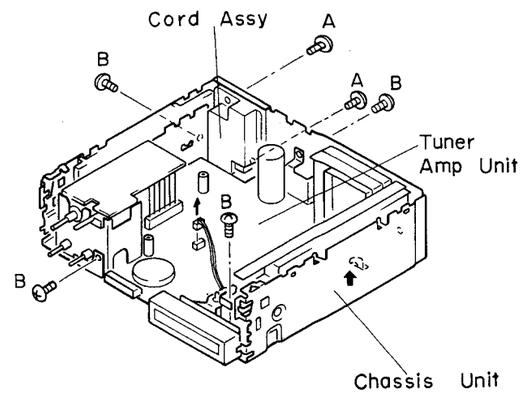


Fig. 4

4. BLOCK DIAGRAM

- KEH-M3000SDK/WG

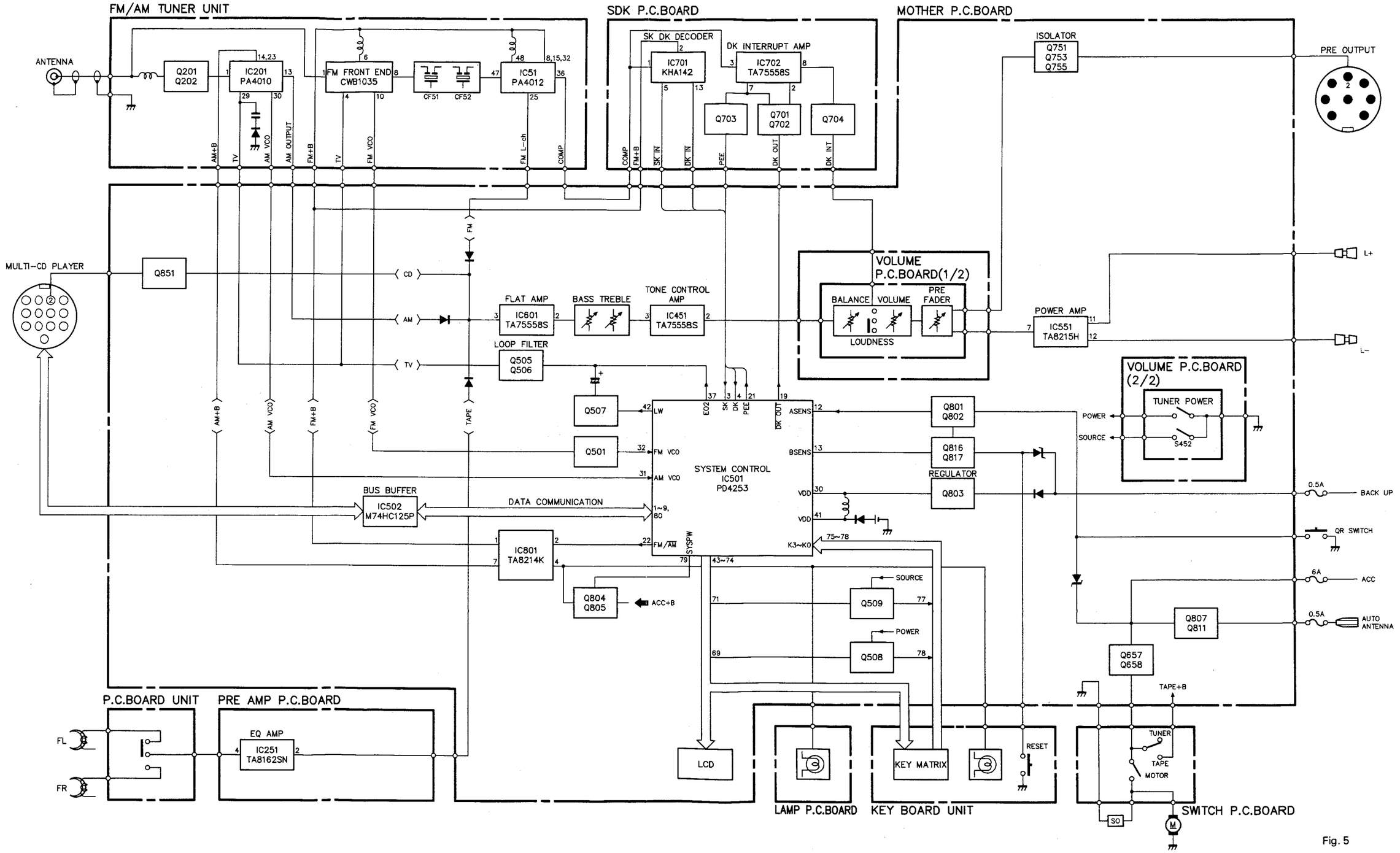
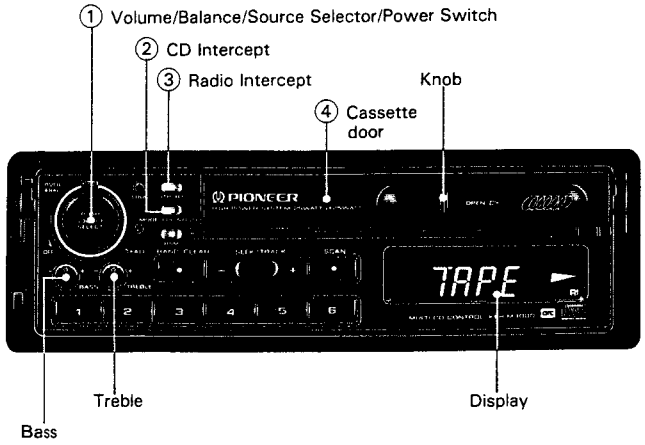
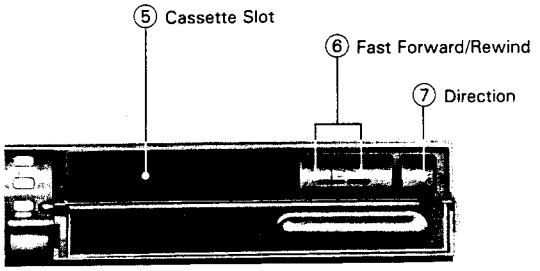
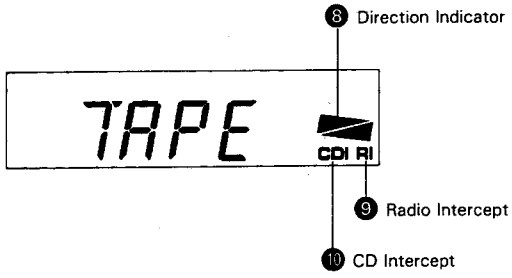


Fig. 5

5. USING THE TAPE DECK







[1] Turning the power switch ① to the right causes power to switch ON.

[2] To open the cassette door, gently slide the knob on the cassette door ④ to the right with your finger, and then release your finger from the door.

- Close the cassette door ④ when not playing a tape.

[3] Load the tape in through the cassette slot ⑤.

[4] Press Button ① to select the tape mode.

[5] Adjust the volume, balance and tone.

To adjust the balance, first pull the knob ① until a click is heard. After setting to the desired level, push the knob ① in again to its original position.

[6] To eject the tape during playback, simultaneously press the Fast Forward and Rewind Buttons ⑥.

- When there is no tape in the cassette slot ⑤, **"TAPE"** flashes on the display.
- Even if you eject a tape while it is playing, power to the main unit is not switched off. When you aren't using the main unit, turn the Power Switch ① to the left to switch power off.

Note:

- A loose or warped label on a cassette tape may interfere with the eject mechanism of the unit or cause the cassette to become jammed in the unit. Avoid using such tapes or remove such labels from the cassette before attempting use.
- Do not try to eject the cassette immediately after insertion, as it will cause malfunction. Wait a few seconds.

Changing Program

Press the button ⑦ to change the side of tape from A to B or vice versa.

Using Fast Forward and Rewind

Since the transport can be in either direction, both the left and right high-speed tape transport buttons ⑥ can be regard as fast forward/rewind buttons.

For fast forward, press the high-speed tape transport button ⑥ that corresponds to the direction that is shown by the direction indicator ❽.

When the end of the tape is reached, playback will automatically begin from the opposite side of the tape (Auto-reverse).

For rewind, press the button ⑥ that is opposite that of the direction shown by the direction indicator ❽. When the end of the tape is reached, playback will automatically begin from the beginning of the same side of the tape (Auto-replay).

Fast forward and rewind can be terminated by pressing the respective opposite high-speed tape transport button ⑥.

Using Radio Intercept

Use Radio Intercept to hear radio while Fast Forward or Rewinding.

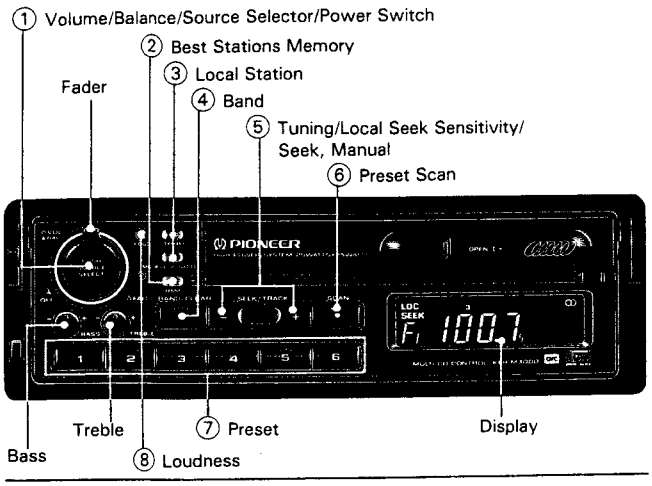
1. Press the button ③ (**"RI"** ❾ appears) before Fast Forward or Rewinding, and you will hear radio.
2. To release the Radio Intercept function, press the button ③ again.

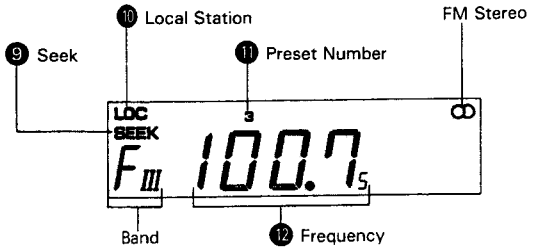
Using CD Intercept

If you have connected an optional multi-play CD player, use CD Intercept to hear disc play while Fast Forward or Rewinding.

1. Press the button ② (**"CDI"** ❿ appears) before Fast Forward or Rewinding, and you will hear disc play.
2. To release the CD Intercept function, press the button ② again.

6. USING THE RADIO





[1] Turning the power switch ① to the right causes power to switch ON.

[2] Press Button ① to select the Radio mode.

[3] Press Button ④ to select a band.

$F_I \rightarrow F_{II} \rightarrow F_{III} \rightarrow M/L$

(FM1) (FM2) (FM3) (MW/LW)

Use Button ⑤ to switch between MW (531 — 1,602 kHz) and LW (153 — 281 kHz).

[4] Use seek tuning to tune in a frequency.

Confirm that the **"SEEK"** indicator ⑨ is shown on the display (if not, press the (+) and (–) sides of Button ⑤ at the same time). Press the (+) side of Button ⑤ to automatically tune in the next higher receivable frequency, and the (–) side for a lower frequency.

[5] Adjust volume, balance and tone.

To adjust the balance, first pull the knob ① until a click is heard. After setting to the desired level, push the knob ① in again to its original position.

[6] Assign the tuned frequency to one of the buttons in Bank ⑦ (preset memory).

Press and hold down one of the buttons in Bank ⑦ for at least two seconds. The frequency is assigned to the selected button when the preset number ⑪ stops flashing on the display. Up to 18 FM stations (6 each for FM1, FM2 and FM3), and six MW/LW stations can be assigned to the preset memory buttons in Bank ⑦.

[7] Once a frequency is assigned to a button in Bank ⑦, you just need to press that button to tune it in.

This also causes the number of the button pressed to appear at Position ⑪ on the display.

Preset Scan Tuning

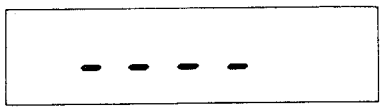
This function lets you automatically monitor the stations assigned to the preset buttons.

1. Press the button ⑥, and the preset number ⑪ flash. Each station assigned to the buttons in Bank ⑦ will be automatically tuned in for about eight seconds.
2. When you hear a station that you like, press Button ⑥ again to cancel preset scan tuning and remain at that station.

BSM (Best Stations Memory)

This function automatically locates stronger stations and automatically assigns their frequencies to the buttons in Bank ⑦, from strongest to weakest. It comes in handy when trying to find local stations while driving.

1. Press Button ④ and select a band.
2. Hold down Button ② about two seconds to start the BSM search. At this time, "— — — —" will flash on the display.



3. The frequency display will return once BSM search is complete, and frequencies are assigned to buttons 1 through 6 in Bank ⑦.

- At the end of the BSM search, the displayed frequency is that assigned to Button [1] of Bank ⑦.
- If there are fewer than six strong stations in the area, some of the buttons in Bank ⑦ will not be assigned frequencies, so they will retain any frequencies assigned to them previously.
- BSM search may take as long as 30 seconds in areas where there are few strong stations.
- You can cancel BSM search by pressing Button ④.

Manual Tuning

Use manual tuning when stations are too weak to be picked up by seek tuning.

1. Press both (+) and (–) sides of Button ⑤ at the same time to clear **"SEEK"** ⑨.
2. Each press of the (+) side of Button ⑤ increases the frequency in 50 kHz steps in the FM band, 9 kHz in the MW band and 1 kHz in the LW band. Pressing the (–) side of Button ⑤ decreases the frequency. Holding down either side of Button ⑤ changes the frequency at high speed.

Fader Control

This control is used to adjust the balance between the front and rear speakers when using a 4-speaker system. Turning the control to the right decreases the volume of the rear speakers, while turning it to the left decreases the volume of the front speakers. With 2-speaker systems, set this control to the upright position.

Using the Loudness Function

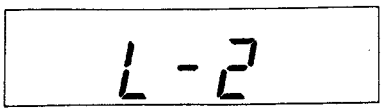
When playing back a tape or listening to the radio at low volume, the low and high tones are emphasized and more clearly heard by pressing Button ⑧.

Adjusting Seek Sensitivity

The seek tuning function of this tuner lets you select between a local setting for reception of strong stations only, and a DX (distant) setting for reception of weaker stations. The local setting also has four seek tuning sensitivity levels for FM and two levels for MW/LW to match local conditions.

Changing the Local Seek Sensitivity

1. Use Button ④ to select a band.
2. Hold down the button ③ for more than two seconds, and the display will show you the current local seek sensitivity for about five seconds.



(Example: L-2)

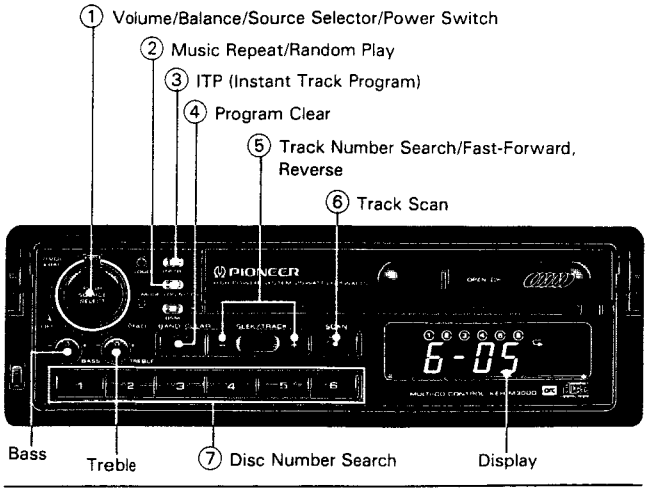
3. While the local seek sensitivity remains on the display, press the (+) side of Button ⑤ to increase the sensitivity level, and the (–) side to decrease the level as shown below.
   FM : L-1 ⇄ L-2 ⇄ L-3 ⇄ L-4
   MW/LW : L-1 ⇄ L-2
   The L-4 setting allows reception of only the strongest stations, while lower settings let you receive progressively weaker stations.

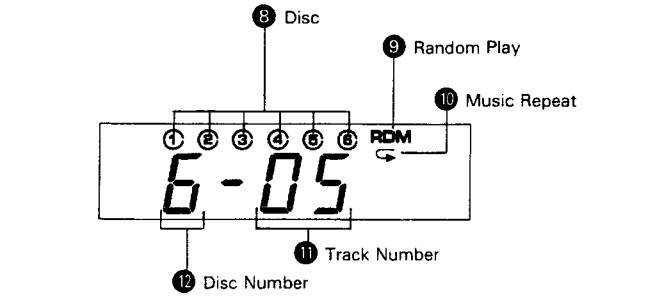
- The display of local seek sensitivity returns to the frequency when about five seconds have elapsed after the change of sensitivity.

Switching between Local and DX

Press Button ③ to switch between Local and DX (distant) seek tuning.
When "LOC" ⑩ is shown on the display, seek tuning is performed with the local seek sensitivity. Otherwise, seek tuning is performed with the DX seek sensitivity.

7. PLAYING COMPACT DISCS





1 Turning the power switch ① to the right causes power to switch ON.

2 Press Button ① to select the Multi-Play CD player mode.

3 Use the Disc Number Search function to select a disc.

Select the desired disc by pressing one of the buttons in Bank ⑦. The number of the disc selected appears at Position ⑫ on the display.

- Display ⑧ indicates whether the magazine is loaded or empty.
- If the number at Position ⑫ on the display does not change when you press a button in Bank ⑦, it means that there is no disc loaded in that tray.

4 Use Track Number Search to select a track.

Confirm that Track Number is shown at Position ⑪ on the display.

If not, press the (+) and (–) sides of Button ⑤ at the same time. Press the (+) side of Button ⑤ to increase the number at Position ⑪, or the (–) side to decrease the number. Holding either side of Button ⑤ down changes the track number at high speed.

5 Adjust the volume, balance and tone.

To adjust the balance, first pull the knob ① until a click is heard. After setting to the desired level, push the knob ① in again to its original position.

6 To stop disc play, press Button ①.

If you switch to the Multi-Play CD player mode again, the normal play resumes from about where it stopped.

- If you stopped operating a Multi-Play CD Player CDX-M100 in the middle of music and then restarted, the player resumes playing from the very beginning of the selection with which you stopped.

Note:

- After you press a Button in Bank ⑦, it may take some time before play begins due to the time necessary to load and set the disc in the mechanism.
- When you switch to the Multi-Play CD player mode, if there is no magazine loaded in the Multi-Play CD player, **"Cd"** flashes on the display.
- Even if you eject the magazine while a CD is playing, power to the main unit is not switched off. When you aren't using the main unit, turn the Power Switch ① to the left to switch power off.
- The display counts down the number of seconds between tracks if the spacing is rather large (–02, –01).

Using Highlight Scan

Highlight Scan is designed to enable you to conveniently scan all pieces of music contained in the disc by playing 10 seconds each at your designated point of time after the start of the music. The starting time of play is set at one minute in factory. Therefore, the Highlight Scan begins one minute after the start unless you designate it otherwise. (This function does not operate when used with the CDX-M70 or CDX-M100.)

When you do not want to change the factory-set time:

1. Press Button ⑥ (Track Number ⑪ flashes).
2. The contained pieces of music will be played in sequence for 10 seconds each one minute after the beginning.
3. Press Button ⑥ again when your selected piece comes, and it will continue to play. At this point, the Highlight Scan discontinues to operate.

- The previous function automatically resumes when a piece of music with which Highlight Scan began returns.

Changing the Starting Time of Highlight Scan

When you want to set the starting time of the Highlight Scan to 30 seconds:

1. Press Button ⑤, (+) and (–) sides simultaneously, and time numerals will be displayed.
2. Keep pressing either (+) or (–) side of Button ⑤ until the numerals reaches 30.

3. Hold down Button ⑥ for two or more seconds, and Track Number ⑪ flashes and the Highlight Scan will begin 30 seconds after the start of the next piece of music.

- The starting time of Highlight Scan can be designated at ten or tens of seconds only. A tenth or tenths of seconds can be disregarded.
- If a piece of music ends before your designated point of time at which Highlight Scan starts, the scanning is performed for its beginning 10 seconds.
- If a piece of music lasts less than 10 seconds, so does the Highlight Scan.
- You may wish to change the starting time longer without suspending the function. You may do so, however, only to a relatively long-playing piece of music because, as a matter of course, the time cannot be set so as to come after the end of the music.

Using Track Scan

This function lets you scan through the tracks on a disc by playing only the first ten seconds of each track. (This function operates only when used with the CDX-M70 or CDX-M100.)

1. Press Button ⑥ (Track Number ⓫ flashes).
2. To cancel track scan and continue play at the current track, press Button ⑥ again.

- After track scan plays through all of the tracks, disc play resumes from the beginning of the track from which track scan was started.

Using Music Repeat and Random Play

Each time ② is pressed, the mode is changed in the following order: Repeat ("↻" ⓾ appears) → Random Play ("**RDM**" ❾ appears) → Release.

Music Repeat

1. To repeat the music you are listening to, select the repeat mode ("↻" ⓾ appears).
2. To cancel music repeat, press button ②. This turns "↻" ⓾ off.

- When Music Repeat is not operational, the compact discs contained in the magazine will play sequentially from beginning to end, and then start from disc 1 again.

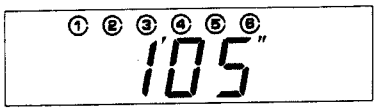
Random Play

1. To play music randomly, select the random play mode ("**RDM**" ❾ appears). Once the current track has been played, the microprocessor will randomly select the next and subsequent tracks.
2. To cancel random play, press button ②. This turns "**RDM**" ❾ off.

- Since selections are played in random order, the same selection may be played twice in succession.
- When a Multi-Play CD Player CDX-M100 is used, random selection is made from a disc being played.

Using Fast Forward and Reverse

1. Press simultaneously both (+) and (–) sides of the button ⑤. At this time the display will show the amount of elapsed disc play time.



2. Press the (+) side of Button ⑤ for fast forward, and the (–) side for reverse.

- Sound is output during fast forward and reverse operations.

This function lets you program the play sequence of all of the tracks contained on the compact discs loaded in the magazine.

- The ITP function will not operate when connected to either the CDX-M70 or CDX-M100.
- Up to 32 selections can be programmed for a single magazine.
- Up to 16 different magazines (max. 32 selections per magazine) can be programmed individually. If you program more than 16 magazines, old programs are automatically replaced by new ones.
- Automatic Magazine Program Selection (AMPS) retrieves the right program from the memory automatically, as soon as a preprogrammed magazine is loaded. Preprogrammed magazines are identified using the CD in the tray 1 of the magazine. Therefore be sure that tray 1 contains a disc.

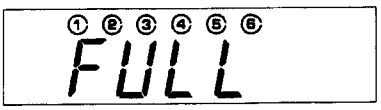
Programming

1. While a disc is playing, select the desired disc and track you want to program. (See page 10)
2. Press the ITP button ③ to memorize the track being played.

Displays the number of the step being added to the memory.

3. Procedures 1 and 2 above can be repeated until a maximum of 32 steps are programmed.

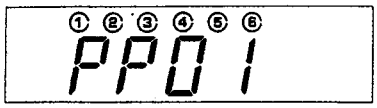
- If the 33rd step is selected, the "**FULL**" display will appear, indicating that no more selections can be programmed.



- ITP memory is also possible during track scan.
- ITP memory is not possible during music repeat or random play.
- When there are already a number of selections in the memory, the new selection will be added to the last step.

Playing back the program

1. Hold down the ITP button ③ for 2 seconds to begin play in the programmed sequence, while a disc is playing.



Displays the step number being played.

2. Press the ITP button ③ again to cancel program play.

- Pressing button ⑤ during programmed play makes it possible to search for a specific step number from among the programmed selections.
- Program play returns to the first step in the programmed sequence when it reaches the end of the program.

Erasing the program

It is possible to erase one or all selections of the program in the magazine being played.

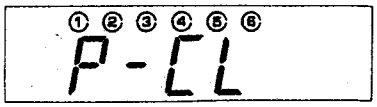
To erase a single selection:

1. Press button ⑤ during programmed play, and search for the specific step you wish to erase.
2. Press the Program Clear button ④ for at least 2 seconds and the selection being played will be erased.

- After the particular track has been erased, the tracks in the next position move from down up one notch in the order from the previous position.

To erase the entire program:

While a disc is playing, hold down button ④ for at least 2 seconds. All the programs in the magazine being played will be erased.



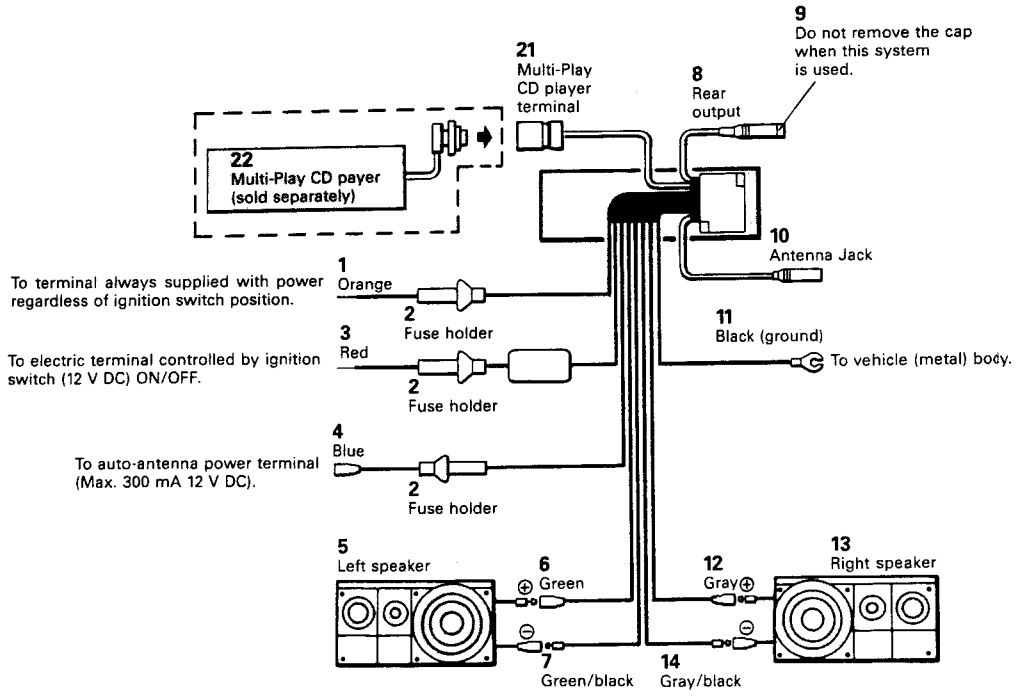
Indicates "P-CL."

8. CONNECTION

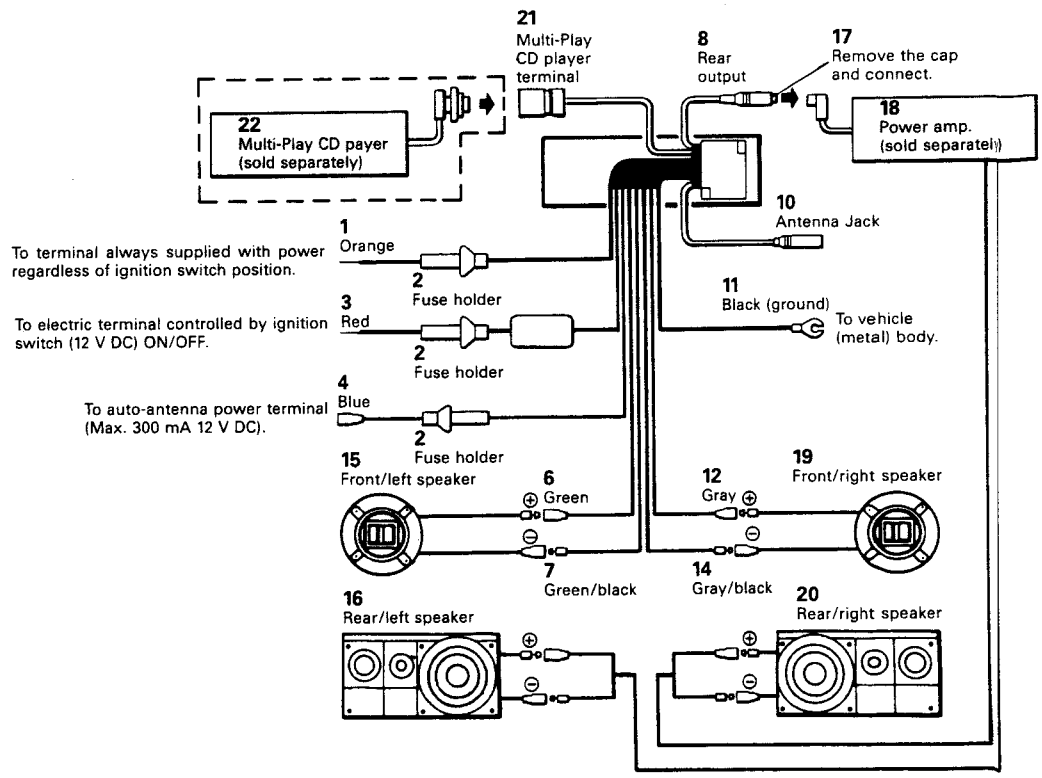
Note:

- To avoid shorts in the electrical system, be sure to disconnect the battery ⊖ cable before beginning installation.
- Replace fuses only with the types stipulated on the fuse holder.
- Be sure to properly connect the color coded leads. Failure to do so can cause malfunctions.
- Cover unused terminals with tape to prevent electrical shorts.
- See the respective power amp owner's manual for detailed wiring (power supply, etc.) information.
- Since a unique BPTL circuit is employed, never wire so the speaker leads are directly grounded or the left and right speaker ⊖ leads are common.
- Speakers connected to this unit must be high-power type possessing maximum input of at least 25 W and impedance of 4 to 8 ohms. Connecting speakers with output and/or impedance values other than those noted here can damage the speakers.

2-speaker system



4-speaker system



9. ADJUSTMENT

9.1 TEST MODE

Test mode is mainly used in adjustment of CD multi-players.

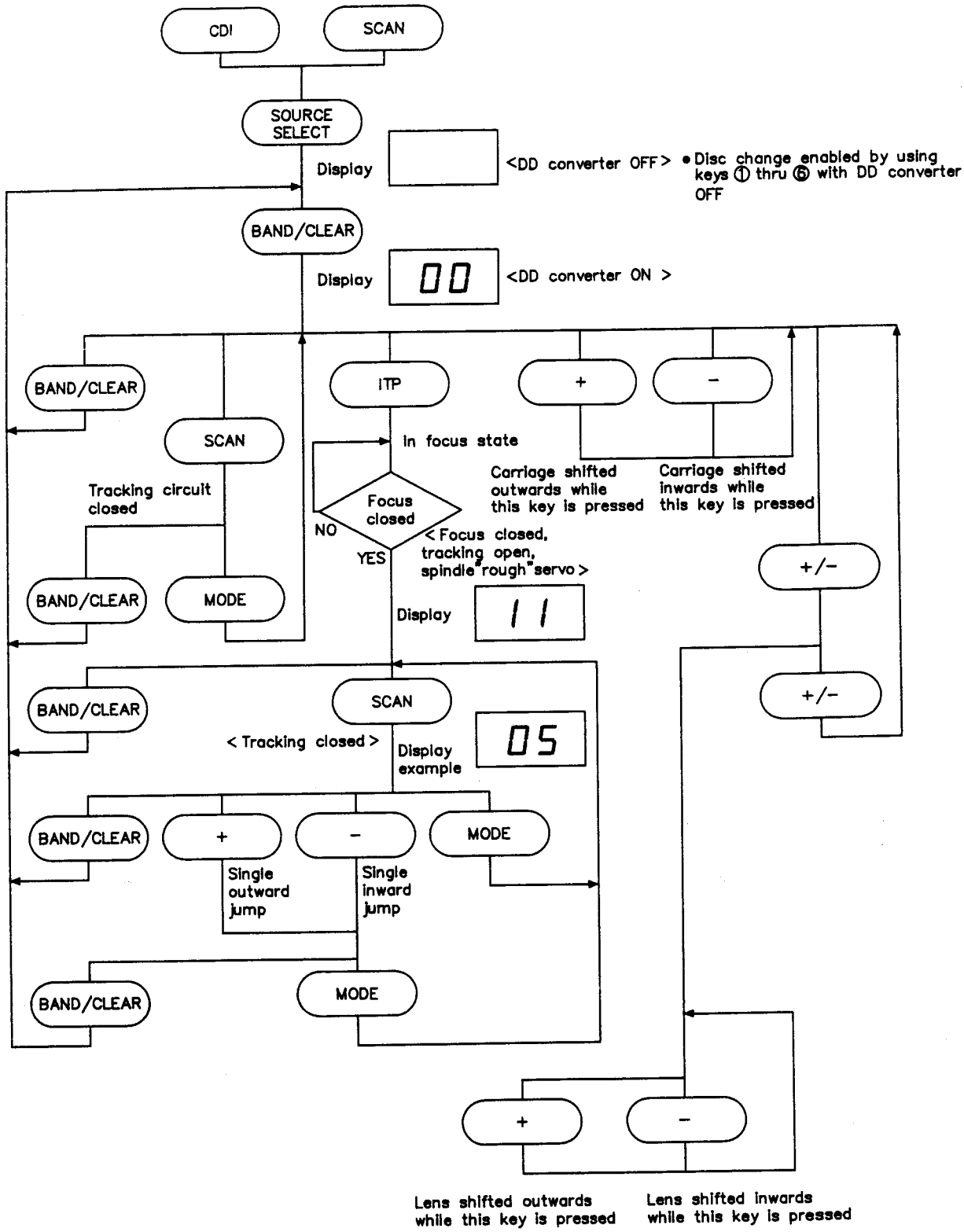
- Switching to test mode
  While pressing the CDI, SCAN keys together, switch the back-up ON or release the reset button.
- Canceling test mode
  Press the CD multi-player clear button, and then the KEH-M3000 clear button. Or, switch the CD multi-player and KEH-M3000 back-up OFF.
- Key functions during test mode
  The CD multi-player, deck, and tuner are selected by the SOURCE SELECT button.

a) CD multi-player

Key	Function
BAND CLEAR	DD converter ON/OFF
+	FWD kick
−	REV kick
SCAN	Tracking close
MODE	Tracking open
ITP	Focus close
+ / −	Carriage / tracking switching

b) Deck and tuner
No corresponding function. Normal operation executed.

- Flow Chart


CDI
SCAN
SOURCE SELECT
Display
<DD converter OFF>
• Disc change enabled by using keys ① thru ⑥ with DD converter OFF
BAND/CLEAR
Display
00
<DD converter ON >
BAND/CLEAR
ITP
+
−
SCAN
In focus state
Carriage shifted outwards while this key is pressed
Carriage shifted inwards while this key is pressed
Tracking circuit closed
Focus closed
NO
YES
< Focus closed, tracking open, spindle rough servo >
+/−
BAND/CLEAR
MODE
Display
11
BAND/CLEAR
SCAN
+/−
< Tracking closed >
Display example
05
BAND/CLEAR
+
−
MODE
Single outward jump
Single inward jump
BAND/CLEAR
MODE
+
−
Lens shifted outwards while this key is pressed
Lens shifted inwards while this key is pressed

9.2 TUNER ADJUSTMENT

NOTICE:
Select C1 so that total capacity of 80pF is attained from the direction of the receiver jack.
Z: Output impedance of SSG.

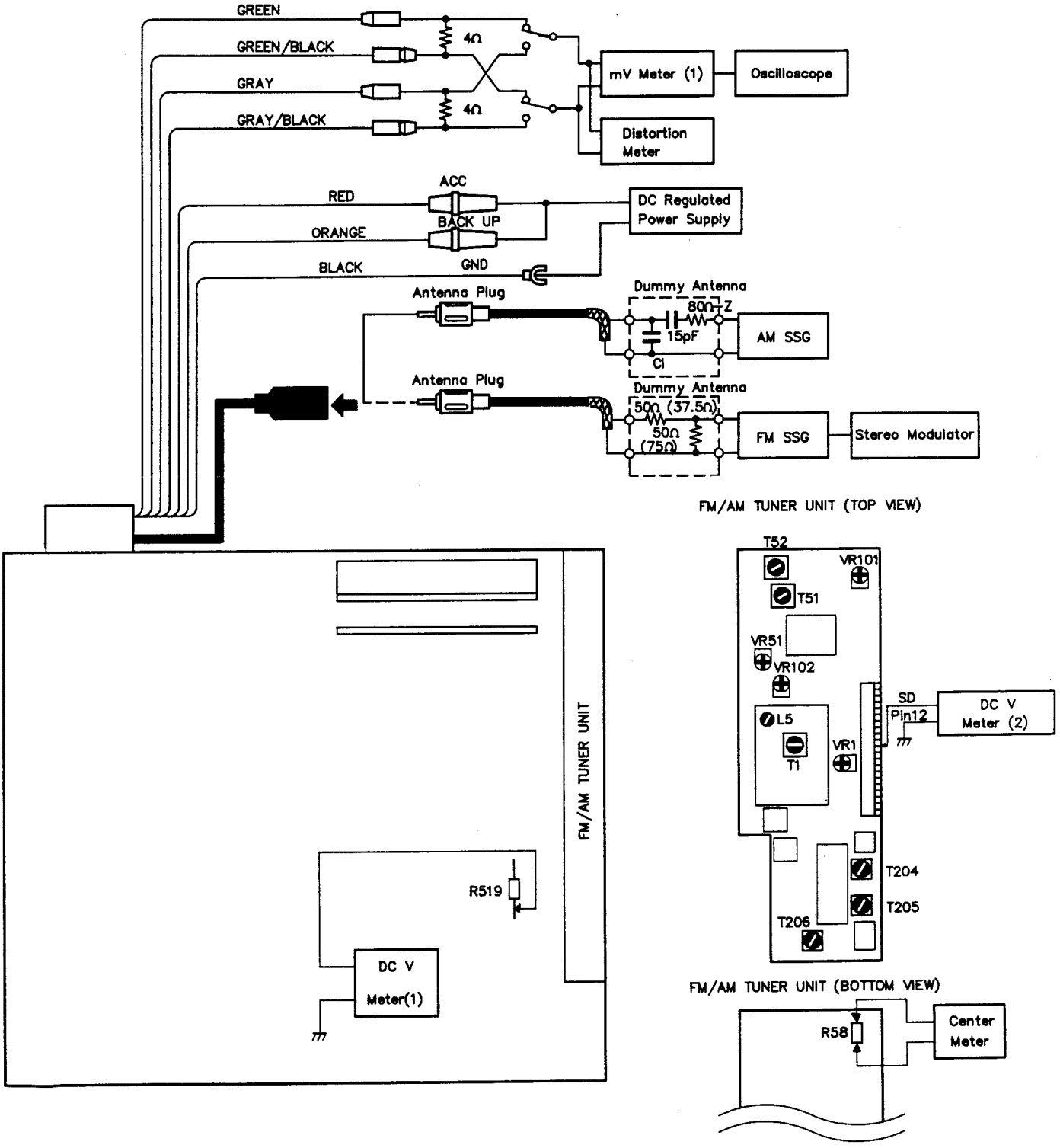


Fig. 6

FM ADJUSTMENT

※ Stereo MOD.: 1kHz, L+R=90%, Pilot=10%
*: UC model

	No.	FM SSG (400Hz, 100%)		Displayed Frequency (MHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency (MHz)	Level (dBμV)			
IF	1	98.1	60	98.1	T51	Center Meter: 0
	2	98.1	60	98.1	T52	Distortion Meter: Minimum
	3	Repeat No. 1-2 alternately so that the center meter indicates the 0 output and distortion meter. indicates minimum output.				
Front End	1			108.0 *(107.9)	L5	DC V Meter: 6.2±0.2V
	2			87.5 *(87.9)	——	Verify that DC V Meter is more than 2.1±0.6V
	3	98.1	8	98.1	T1	Distortion Meter: Minimum
Soft Mute	1	98.1	60	98.1	——	mV Meter (1): A dB
	2	98.1	10	98.1	VR102	mV Meter (1): A-3dB
ARC	1	98.1※	35	98.1	VR101	mV Meter (1): Separation 5dB
SD	1	98.1	17	98.1	VR51	DC V Meter (2): Approx. 5V
	2	98.1	16	98.1	——	Verify that DC V Meter (2) is approx. 0V.
	3	98.1	55	98.1	VR1	DC V Meter (2): Approx. 5V
	4	98.1	54	98.1	——	Verify that DC V Meter (2) is approx. 0V.

MW/LW ADJUSTMENT (WG, EW)

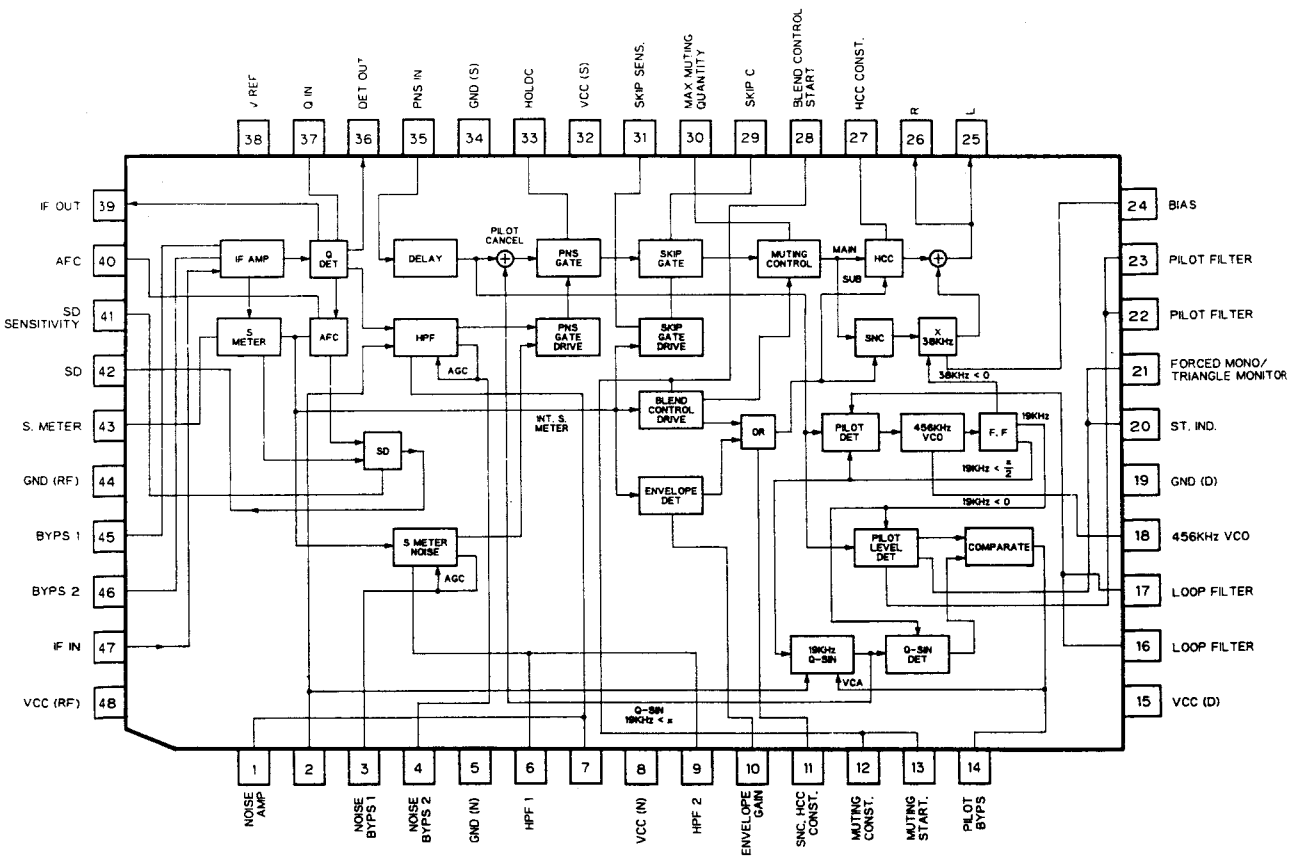
	No.	AM SSG (400Hz, 30%)		Displayed Frequency (kHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency (kHz)	Level (dBμV)			
Tuning Volt	1	(MW MODE)		1,602	——	Verify that DC V Meter (1) is less than 6.5V.
	2	(LW MODE)		153	——	Verify that DC V Meter (1) is more than 2.0V.
IF	1	999	20—25	999	T204, 205, 206	mV Meter (1): Maximum

AM ADJUSTMENT (UC, ES) *:ES model when tuning step at 9kHz.

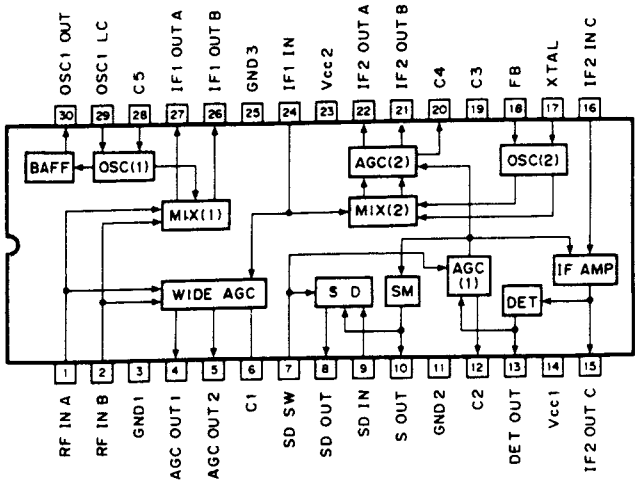
	No.	AM SSG (400Hz, 30%)		Displayed Frequency (kHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency (kHz)	Level (dBμV)			
Tuning Volt	1			1,710 *(1,602)	——	Verify that DC V Meter (1) is less than 6.5V.
	2			530 *(531)	——	Verify that DC V Meter (1) is more than 2.0V.
IF	1	1,000 *(999)	20—25	1,000 *(999)	T204, 205, 206	mV Meter (1): Maximum

- **ICs**

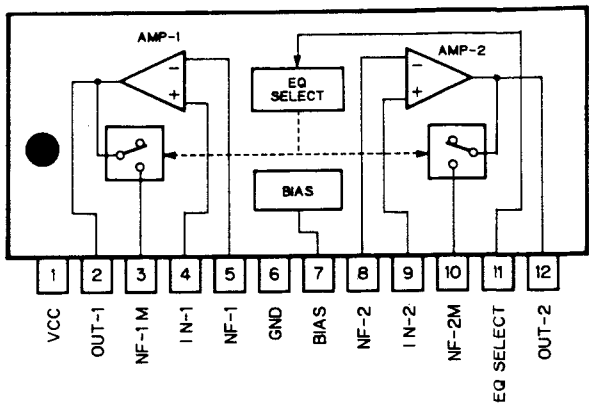
PA4012



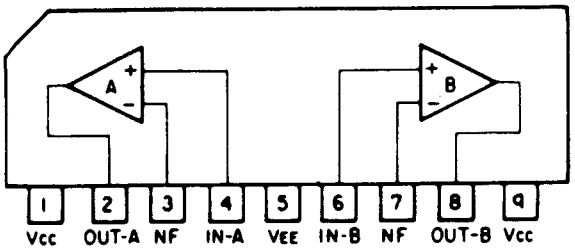
PA4010



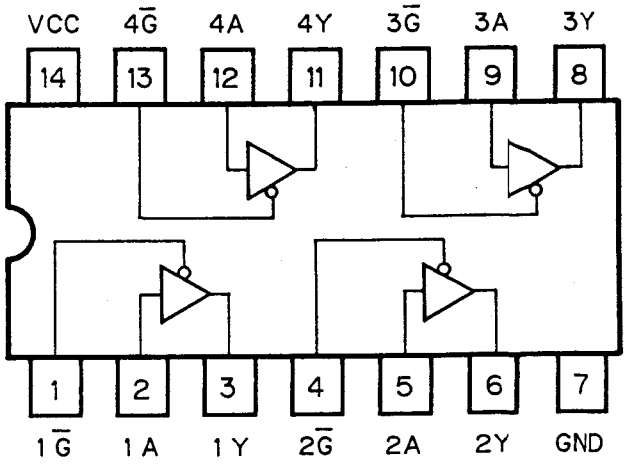
TA8162SN



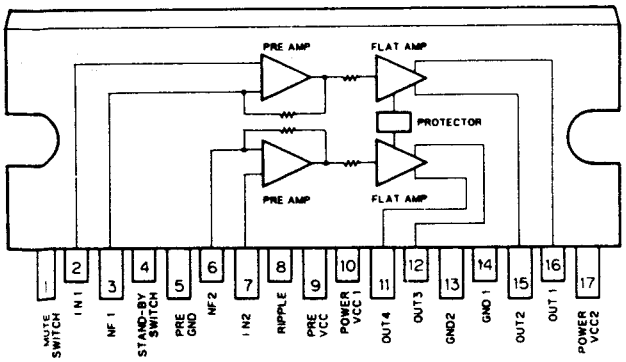
TA75558S



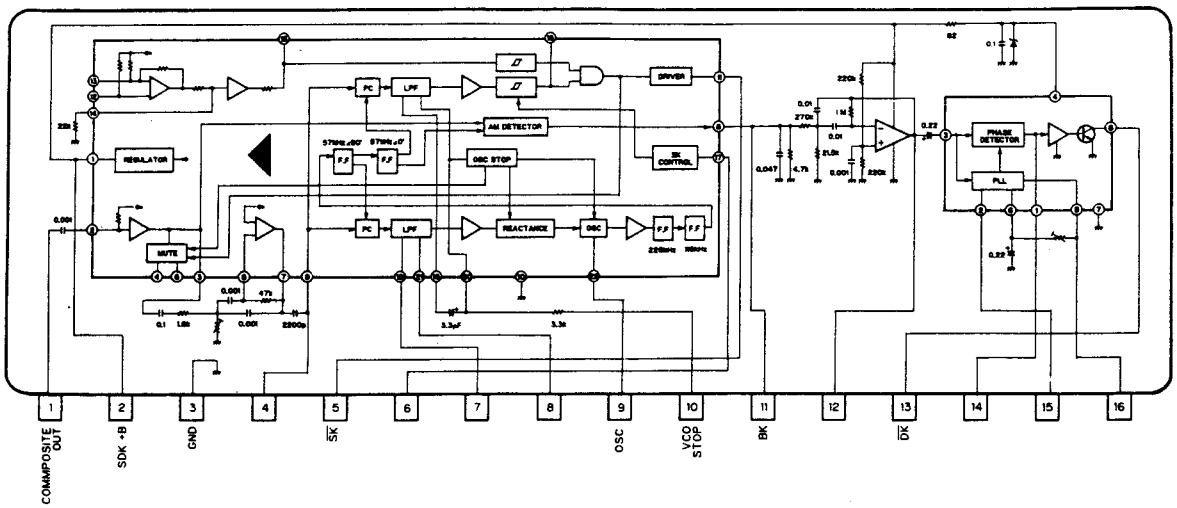
TC74HC125AP



TA8215H

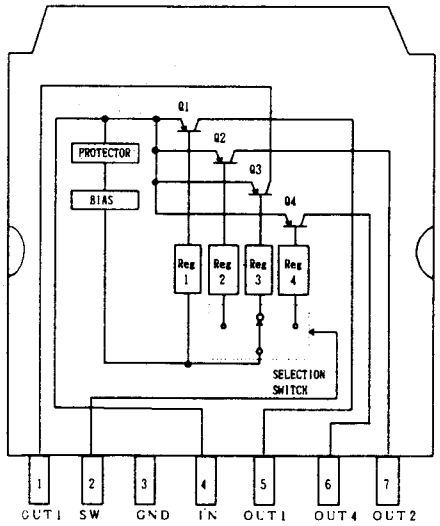


KHA142

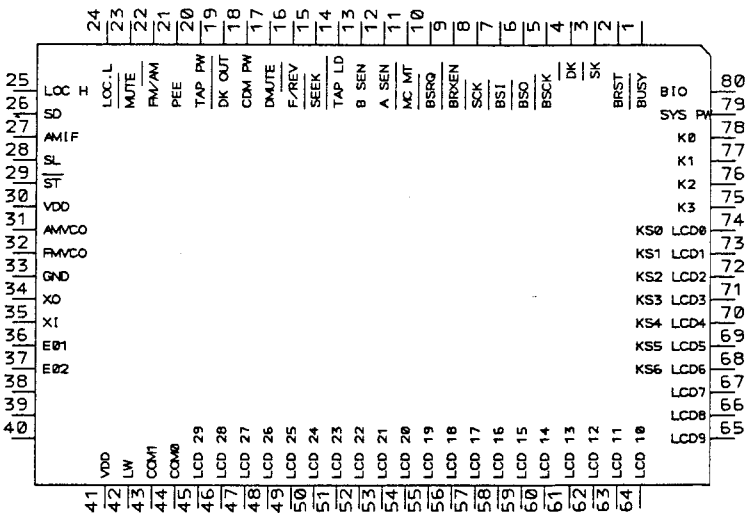


*IC's marked by * are MOS type.*
Be careful in handling them because they are very liable to be damaged by electrostatic induction.

TA8214K



*PD4235



• Pin Function (PD4235)

Pin No.	Pin Name	I/O	Output Format	Function and Operation
1	$\overline{\text{BUSY}}$	Output	C	Bus communication busy output pin
2	$\overline{\text{BRST}}$	Output	C	Bus communication reset output pin
3	$\overline{\text{SK}}$	Input		SK signal input pin
4	$\overline{\text{DK}}$	Input		DK signal input pin
5	$\overline{\text{BSCK}}$	Input		Bus communication serial clock input pin
6	$\overline{\text{BSO}}$	Output	C	Bus communication serial data output pin
7	$\overline{\text{BST}}$	Input	C	Bus communication serial data input pin
8	$\overline{\text{SCK}}$	Output	C	Bus communication serial clock output pin
9	$\overline{\text{BRXEN}}$	Input		Bus communication reception enable input pin
10	$\overline{\text{BSRQ}}$	Input		Bus communication survice request input pin
11	$\overline{\text{MCMT}}$	Input		Cassette mechanism mute input pin
12	ASEN	Input		ACC power sense input pin
13	BSEN	Input		Back up power sense input pin
14	$\overline{\text{TAPLD}}$	Input		Tape LOAD/EJECT sensor input pin
15	$\overline{\text{SEEK}}$	Output	C	"L" level : SEEK, BSM, BSA and PSCAN
16	F/$\overline{\text{REV}}$	Input		Tape motion signal input pin "H" : Forward
17	DMUTE	Output	C	Tape mute output pin
18	CDMPW	Output	N	Multi play CD player power ON/OFF pin
19	$\overline{\text{DKOUT}}$	Output	N	Control by $\overline{\text{DK}}$ (terminal #4) input signal "L" : $\overline{\text{DK}}$ input signal is detected as 125Hz
20	TAPPW	Output	N	Tape power ON/OFF outout pin "H" : ON
21	PEE	Output	C	Alarm output pin
22	FM/$\overline{\text{AM}}$	Output	C	FM/AM band select pin "H" : FM "L" : AM
23	$\overline{\text{MUTE}}$	Output	C	Mute output pin
23	LOC. L	Output	C	Halt sesitivity switching pins

	DX·SEEK	LOC·SEEK	BSM-L	BSM-M(AM)
LOC. H	L	L	L	L
LOC. L	L	H	L	H

	BSM-H	During broadcast reception
LOC. H	H	L
LOC. L	H	L

Pin No.	Pin Name	I/O	Output Format	Function and Operation
26	SD	Input		FM SD input "H":During broadcast reception
27	AMIF	Input		AM IF signal input pin
28	SL	Input		AM station level anarog input pin
29	$\overline{ST}$	Input		Stereo broadcast ditection signal input pin "L":Stereo indicator is displayed
30 41	VDD			Device power supply pin
31	AMVCO	Input		AM local oscillator signal input pin
32	FMVCO	Input		FM local oscillator signal input pin
33	GND			GND terminal
34 35	XO XI	Output Input	C	Quartz oscillator terminal
36 37	EO1 EO2	Output	C(3)	PLL error output pins
38 | 40	NC | NC		C	Not used
42	LW	Output	C	Loop filter switching output pin "H":LW
43 44	COM1 COM0	Output	C	Common signal output pins to LCD
45 | 74	LCD29 | LCD0	Output	C	Segment signal output pins to LCD
68 | 74	KS6 | KS0	Output	C	Key matrix strobe output pins
75 | 78	K3 | K0	Input		Key matrix return input pins
79	SYSPW	Output	C	Power amplifier power ON/OFF control output pin
80	BIO	Output	C	Bus communication TRANSMISSION/RECEPTION control output pin

Output format	Meaning
N	Nchannel open drain
C	C-MOS
C(3)	C-MOS(3 State)

• Pin Function(PD4235)

Pin No.	Pin Name	I/O	Output Format	Function and Operation
1	$\overline{\text{BUSY}}$	Output	C	Bus communication busy output pin
2	$\overline{\text{BRST}}$	Output	C	Bus communication reset output pin
3	$\overline{\text{SK}}$	Input		SK signal input pin
4	$\overline{\text{DK}}$	Input		DK signal input pin
5	$\overline{\text{BSCK}}$	Input		Bus communication serial clock input pin
6	$\overline{\text{BSO}}$	Output	C	Bus communication serial data output pin
7	$\overline{\text{BST}}$	Input	C	Bus communication serial data input pin
8	$\overline{\text{SCK}}$	Output	C	Bus communication serial clock output pin
9	$\overline{\text{BRXEN}}$	Input		Bus communication reception enable input pin
10	$\overline{\text{BSRQ}}$	Input		Bus communication survice request input pin
11	$\overline{\text{MCMT}}$	Input		Cassette mechanism mute input pin
12	ASEN	Input		ACC power sense input pin
13	BSEN	Input		Back up power sense input pin
14	$\overline{\text{TAPLD}}$	Input		Tape LOAD/EJECT sensor input pin
15	$\overline{\text{SEEK}}$	Output	C	"L" level:SEEK, BSM, BSA and PSCAN
16	F/$\overline{\text{REV}}$	Input		Tape motion signal input pin "H":Forward
17	DMUTE	Output	C	Tape mute output pin
18	CDMPW	Output	N	Multi play CD player power ON/OFF pin
19	$\overline{\text{DKOUT}}$	Output	N	Control by $\overline{\text{DK}}$(terminal #4) input signal "L":$\overline{\text{DK}}$ input signal is detected as 125Hz
20	TAPPW	Output	N	Tape power ON/OFF outout pin "H":ON
21	PEE	Output	C	Alarm output pin
22	FM/$\overline{\text{AM}}$	Output	C	FM/AM band select pin "H":FM "L":AM
23	$\overline{\text{MUTE}}$	Output	C	Mute output pin
23 24	LOC. L LOC. H	Output	C	Halt sesitivity switching pins

	DX・SEEK	LOC・SEEK	BSM-L	BSM-M(AM)
LOC. H	L	L	L	L
LOC. L	L	H	L	H
	BSM-H	During broadcast reception		
LOC. H	H	L		
LOC. L	H	L		

Pin No.	Pin Name	I/O	Output Format	Function and Operation
26	SD	Input		FM SD input "H":During broadcast reception
27	AMIF	Input		AM IF signal input pin
28	SL	Input		AM station level anarog input pin
29	$\overline{\text{ST}}$	Input		Stereo broadcast ditection signal input pin "L":Stereo indicator is displayed
30 41	VDD			Device power supply pin
31	AMVCO	Input		AM local oscillator signal input pin
32	FMVCO	Input		FM local oscillator signal input pin
33	GND			GND terminal
34 35	XO XI	Output Input	C	Quartz oscillator terminal
36 37	EO1 EO2	Output	C(3)	PLL error output pins
38 | 40	NC | NC		C	Not used
42	LW	Output	C	Loop filter switching output pin "H":LW
43 44	COM1 COM0	Output	C	Common signal output pins to LCD
45 | 74	LCD29 | LCD0	Output	C	Segment signal output pins to LCD
68 | 74	KS6 | KS0	Output	C	Key matrix strobe output pins
75 | 78	K3 | K0	Input		Key matrix return input pins
79	SYSPW	Output	C	Power amplifier power ON/OFF control output pin
80	$\overline{\text{BIO}}$	Output	C	Bus communication TRANSMISSION/RECEPTION control output pin

Output format	Meaning
N	Nchannel open drain
C	C-MOS
C(3)	C-MOS(3 State)

Pin No.	Pin Name	I/O	Output Format	Function and Operation
26	SD	Input		FM SD input "H":During broadcast reception
27	AMIF	Input		AM IF signal input pin
28	SL	Input		AM station level anarog input pin
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31	AMVCO	Input		AM local oscillator signal input pin
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34 35	XO XI	Output Input	C	Quartz oscillator terminal
36 37	EO1 EO2	Output	C(3)	PLL error output pins
38 | 40	NC | NC		C	Not used
42	LW	Output	C	Loop filter switching output pin "H":LW
43 44	COM1 COM0	Output	C	Common signal output pins to LCD
45 | 74	LCD29 | LCD0	Output	C	Segment signal output pins to LCD
68 | 74	KS6 | KS0	Output	C	Key matrix strobe output pins
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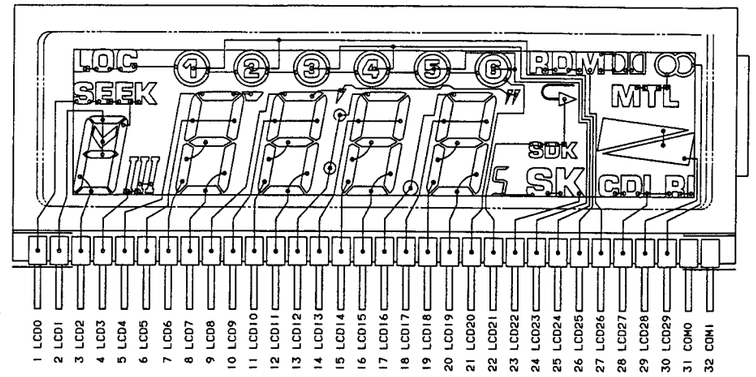
79	SYSPW	Output	C	Power amplifier power ON/OFF control output pin
80	BIO	Output	C	Bus communication TRANSMISSION/RECEPTION control output pin

Output format	Meaning
N	Nchannel open drain
C	C-MOS
C(3)	C-MOS(3 State)

• LCD (CAW1089)

SEGMENT



COMMON

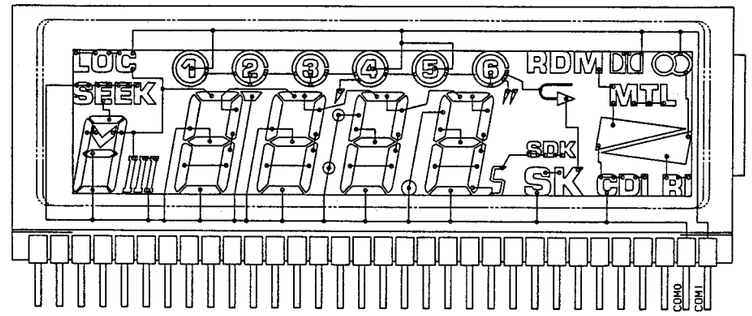


Fig. 7

• Front End Unit (CWB1035)

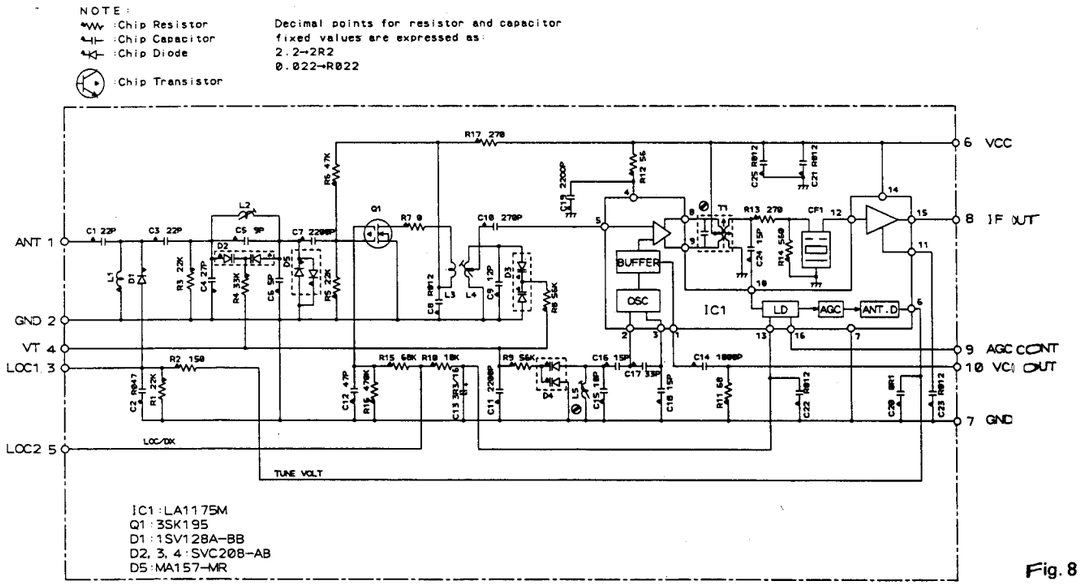
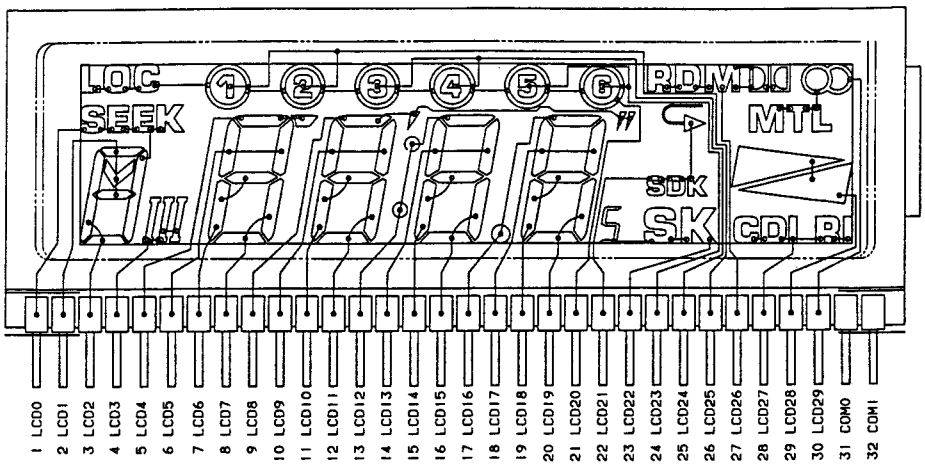


Fig. 8

• LCD (CAW1089)

SEGMENT



COMMON

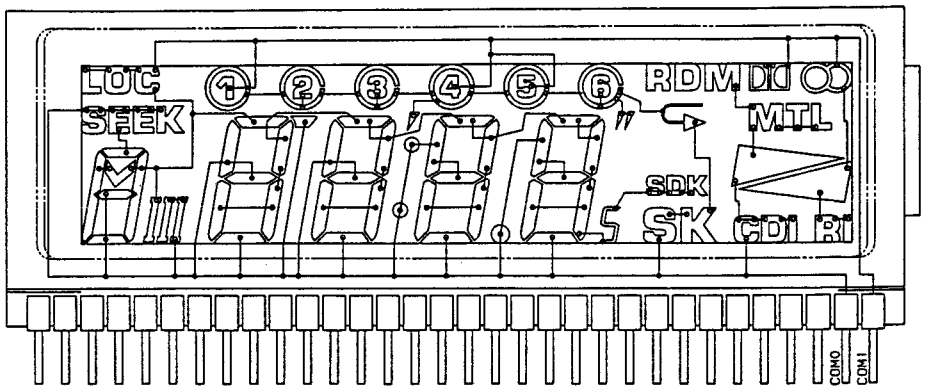


Fig. 7

• Front End Unit (CWB1035)

NOTE :
:Chip Resistor
:Chip Capacitor
:Chip Diode
:Chip Transistor

Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022

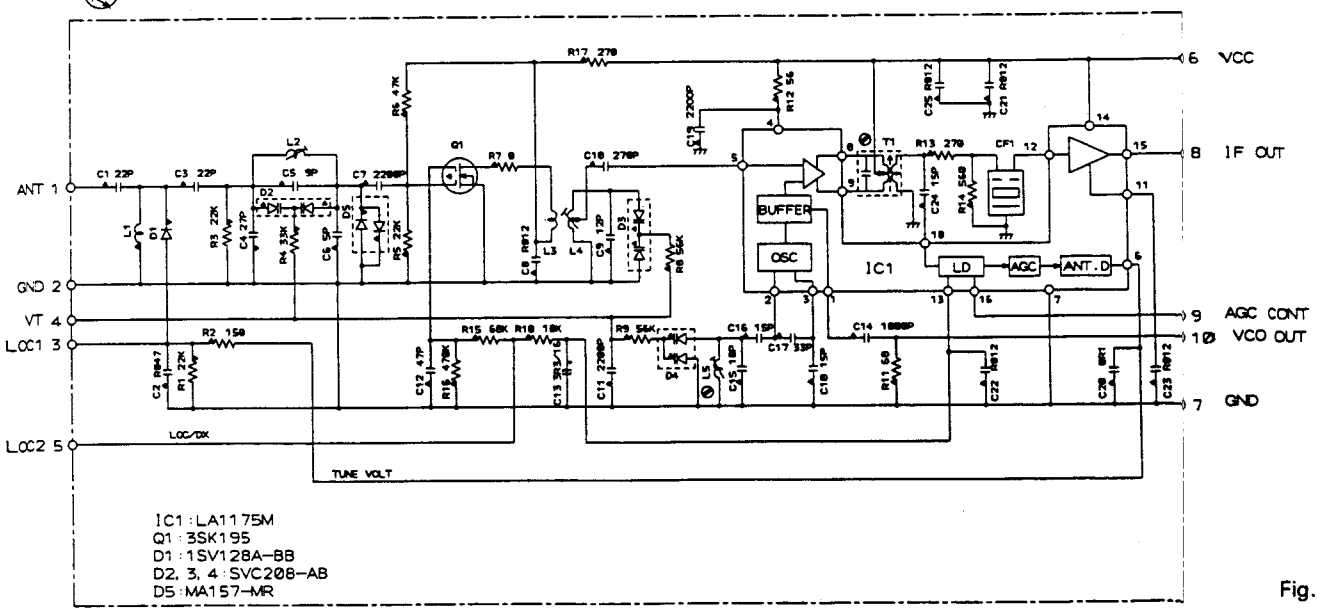
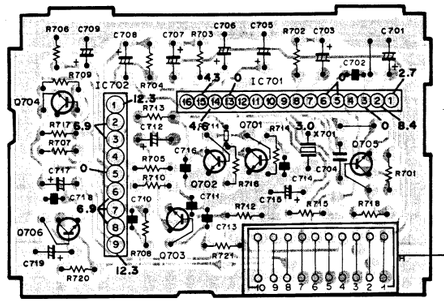


Fig. 8

10. CONNECTION DIAGRAM (KEH-M3000SDK/WG)

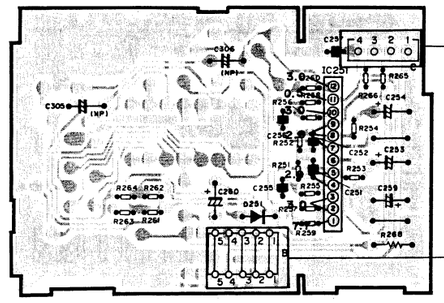
SDK P.C.BOARD

IC,Q Q704 Q706 IC702 Q703 Q702 Q701 IC701 Q705

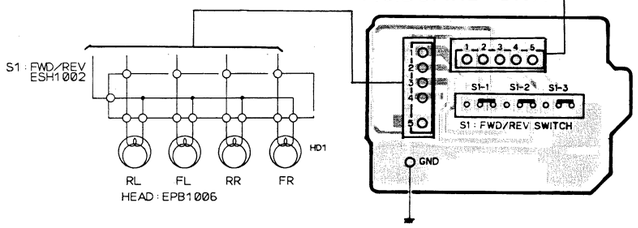


PREAMP P.C.BOARD

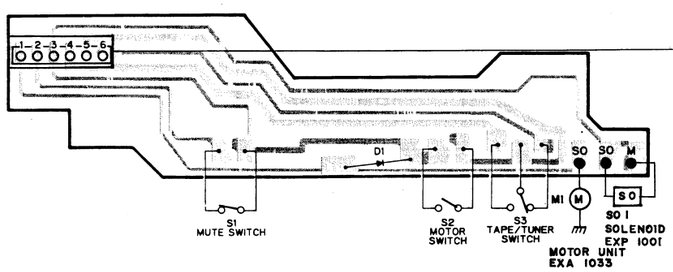
IC,Q IC251



P.C.BOARD UNIT

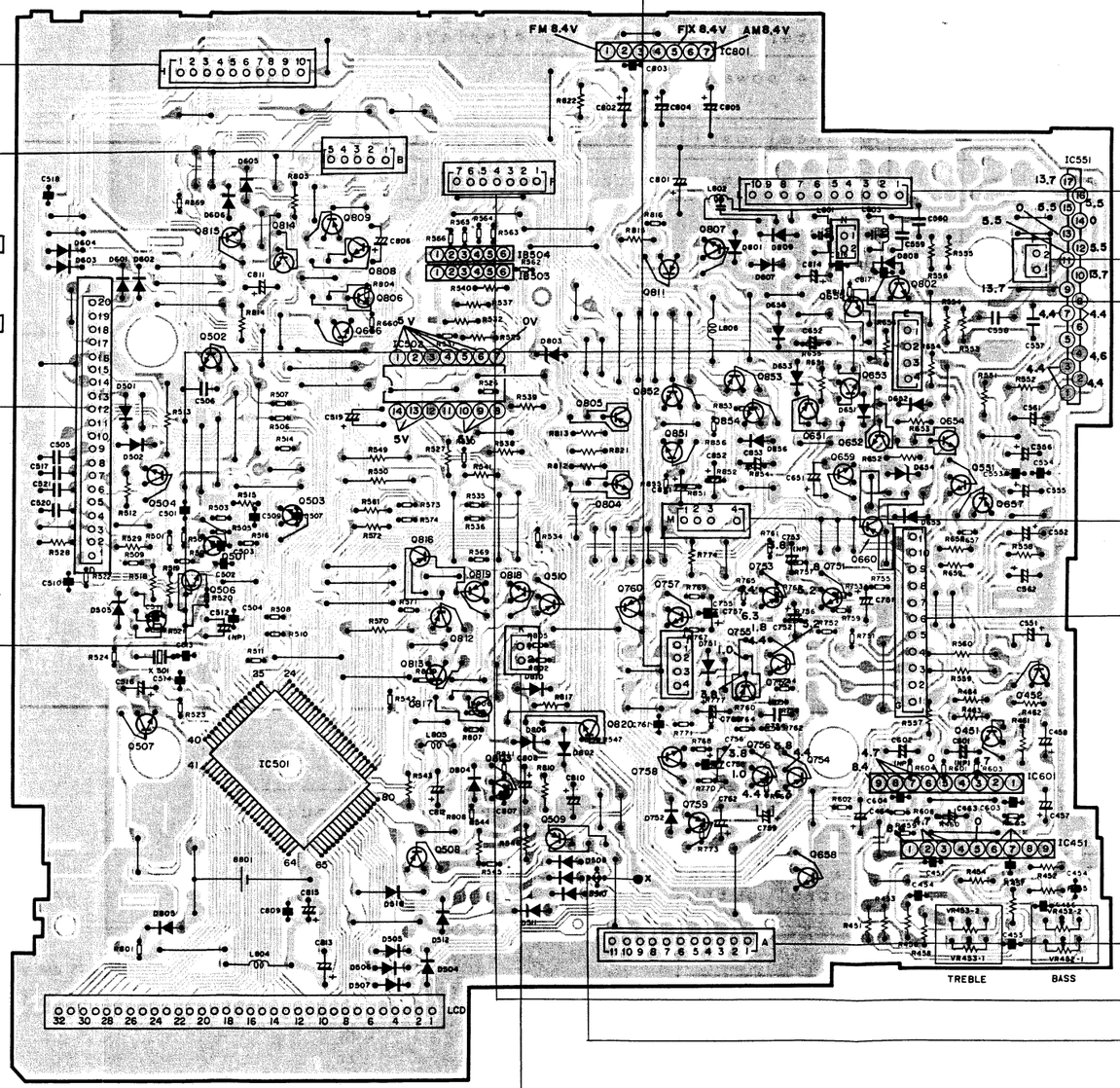


SWITCH P.C.BOARD

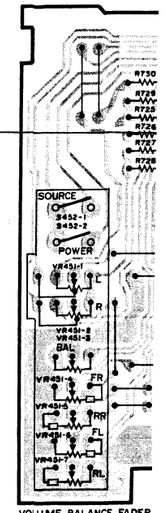


MOTHER P.C.BOARD

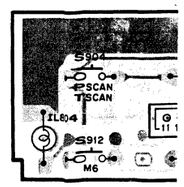
Q502 Q501 Q815 Q814 Q809 Q808 Q806 Q656 IC502 IC801 Q807 Q811 Q805 Q852 Q853 Q655 Q653 Q802 IC551
Q504 Q503 Q816 Q812 Q819 Q818 Q510 Q804 Q760 Q851 Q757 Q854 Q753 Q651 Q659 Q751 Q652 Q660 Q654 Q551 Q657
IC,Q Q505 Q506 Q507 IC501 Q813 Q817 Q803 Q508 Q509 Q820 Q758 Q759 Q755 Q756 Q752 Q754 Q658 IC601 IC451 Q451 Q452



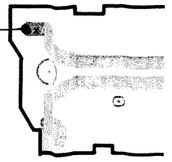
VOLUME P.C

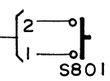


KEY BOARD U



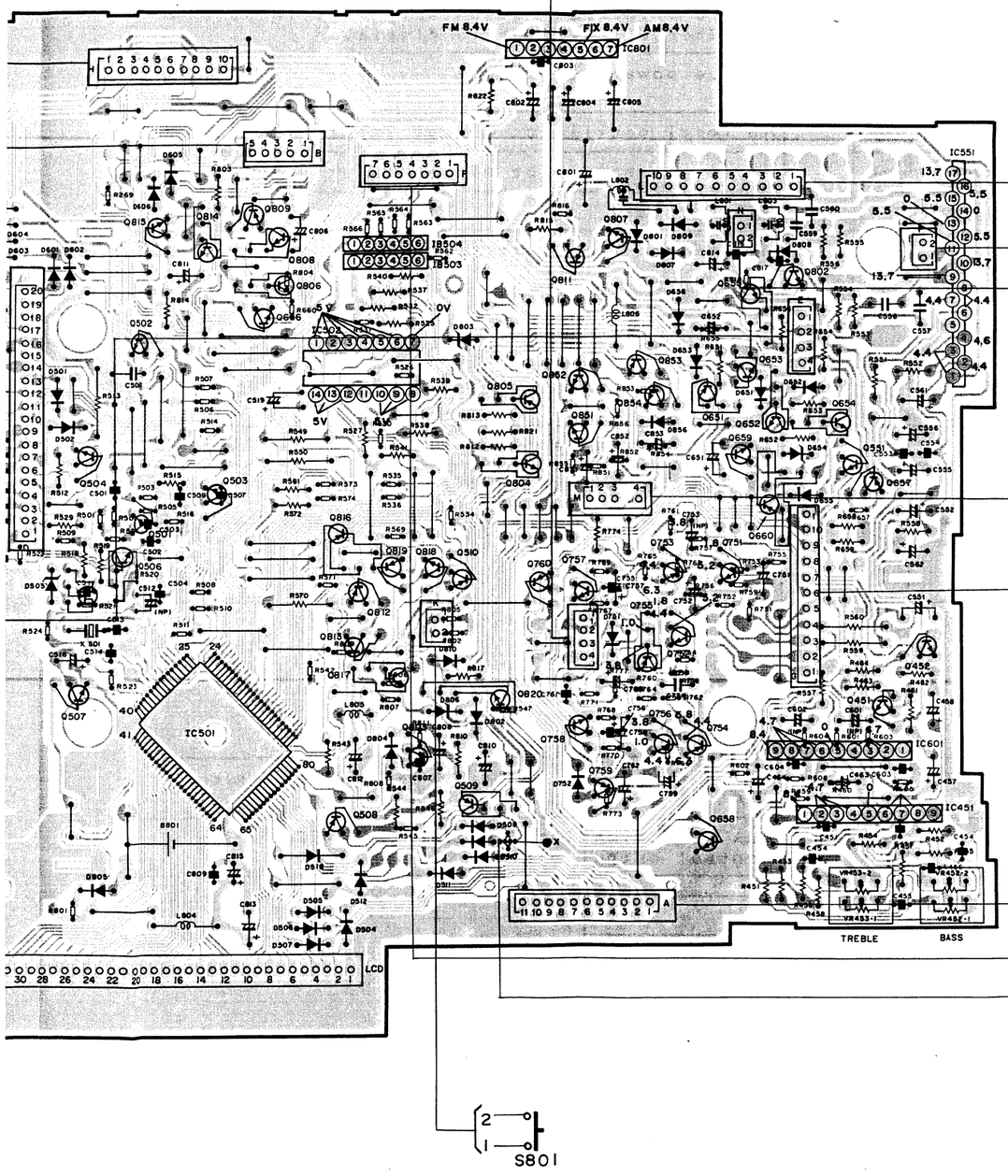
LAMP P.C.BOA



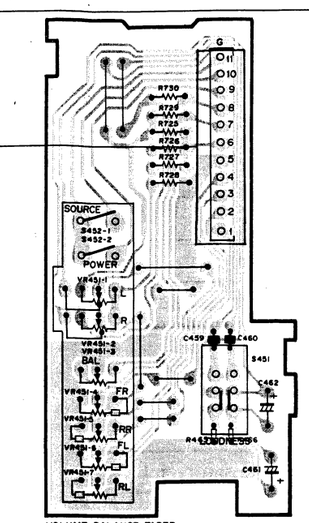


HER P.C.BOARD

Q502 Q501 Q815 Q814 Q809 Q808 Q806 Q656 IC502 IC801 Q807 Q811 Q805 Q852 Q853 Q655 Q653 Q802 IC551
Q504 Q503 Q816 Q812 Q819 Q818 Q510 Q804 Q760 Q851 Q757 Q854 Q753 Q651 Q659 Q751 Q652 Q660 Q654 Q551 Q657
Q505 Q506 Q507 IC501 Q813 Q817 Q803 Q508 Q509 Q820 Q758 Q759 Q755 Q756 Q752 Q754 Q658 IC601 IC451 Q451 Q452

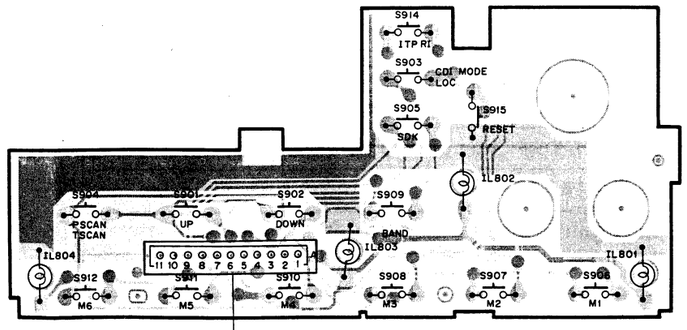


VOLUME P.C.BOARD

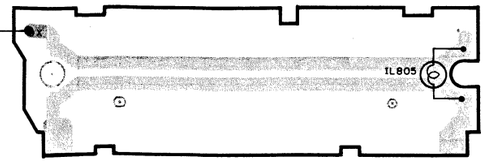


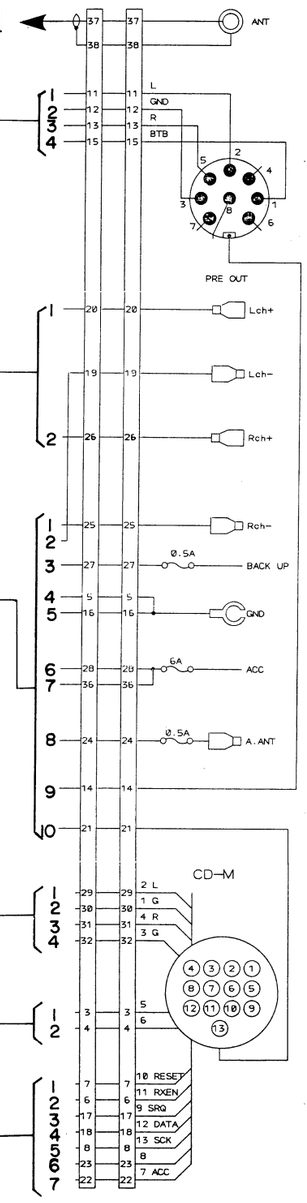
VOLUME, BALANCE, FADER /TUNER POWER SOURCE

KEY BOARD UNIT



LANP P.C.BOARD





S801

Fig. 9

11. SCHEMATIC CIRCUIT DIAGRAM (KEH-M3000SDK/WG)

NOTE:
Chip Resistor — Decimal points for resistor
Chip Capacitor — and capacitor fixed values
Chip Diode — are expressed as:
2.2→2R2
Chip Transistor 0.022→R022

FM/AM TUNER UNIT

SDK P.C.BOARD

SK DK DECODER

DK INTERRUPT AMP

FLAT AMP

BUFFER

BUS BUFFER

FM/AM+B SWITCH

SYSTEM POWER SWITCH

PD4235
SYSTEM CONTROL

VCO AMP

LOOP FILTER

LCD
CAW1089

MOTHER P.C.BOARD

LAMP P.C.BOARD

KEY BOARD

TUNER AMP UNIT

Q451, 452, 701, 702	
Q501	
Q502, 506, 703, 704, 7	
Q503, 507, 656, 806, 8	
Q504	
Q505	
Q508, 509, 754, 756, 7	
Q510, 816, 819	
Q551, 652, 653, 655, 6	
Q651, 660	
Q654, 751, 752	
Q657	
Q658, 807, 808, 813, 8	
Q753, 755	
Q757, 758	
Q760, 853	
Q804, 854	
Q811, 854	
Q809, 812	
Q851, 852	

AMP UNIT	
452, 701, 702	2SD1468S
	2SC2498
506, 703, 704, 705, 706, 803	2SC2458
507, 656, 806, 814 815	DTC124ES
	2SC3113
	2SK330
509, 754, 756, 759	2SA1048
816, 819	DTA124ES
652, 653, 655, 659, 816, 819	DTC124EL
660	DTA124EL
751, 752	2SC4038LN
	2SB772
807, 808, 813, 817, 818, 820	DTC114TS
755	2SA1561
758	DTC314TL
853	DTA114EL
854	DTC114TL
854	2SB1243
812	DTB123ES
852	2SC3327

D251, 501, 502, 504, 505, 506, 507, 508, 509, 510, 511, 512, 601, 602, 603, 604, 605, 606, 651, 652, 653, 655, 656, 752, 807, 810	1SS133
D503	HZS3R0EB2
D518	1S1555
D654	HZS8R2JB2
D751	RD3R6ESB1
D801	ERC04-02F
D802, 808, 809	ERA15-02VH
D803	HZS6R8JB2
D804	HZS5R6JB2
D805	MA700
D806, 856	HZS6R8JB2
S451	CSG-207
VR451/S452	CCS1156
VR452, 453	CCS1158
IL805	CEL1013

ISOLATOR

MUTE −17.8dBs

VOLUME P.C.BOARD

AT AMP

DK INTERRUPT

TONE CONTROL AMP

MUTE −19.7dBs

−20.2dBs

+19.9dBs

POWER AMP

ANT

DIN OUT

Lch+

Lch−

Rch+

Rch−

BACK UP

GND

ACC

A.ANT

EQ AMP

−24.0dBs

−23.1dBs

−73.8dBs

QR SWITCH

S801:CSN-078

ACC SENSOR

PRE AMP P.C.BOARD

−17.1dBs

CD-M

BACK UP SENSOR

TAP LD

TAP PW

ACC

M/C MUTE

TEST TAPE
315Hz 0dB

S1:FWD/REV
ESH1002

HEAD:EPB1006

SOLENOID
EXP1001

MOTOR UNIT
EXA1033

S1, 2:ESN1001
S3:HSK-126

SWITCH P.C.BOARD

P.C.BOARD
UNIT

BOARD UNIT

TUNER AMP UNIT
Consists of
MOTHER P.C. BOARD
VOLUME P.C.BOARD
LAMP P.C. BOARD
SDK P.C. BOARD
PRE AMP P.C. BOARD

SWITCHES:

- VOLUME P.C.BOARD
  - S451:LOUDNESS SWITCH ..... ON — OFF
  - S452-1:SOURCE SWITCH ..... ON — OFF
  - S452-2:TUNER POWER SWITCH ... ON — OFF
- SWITCH P.C.BOARD
  - S1:MUTE SWITCH ..... ON (EJECT) — OFF (PLAY)
  - S2:MOTOR SWITCH ..... ON — OFF
  - S3:TAPE/TUNER SWITCH ..... TUNER — TAPE
- P.C.BOARD
  - S1:FWD/REV SWITCH ..... FWD — REV

The underlined indicates the switch position.

Fig. 10

12. SCHEMATIC CIRCUIT DIAGRAM (KEH-M3000B/EW, IT)

NOTE:
Chip Resistor
Chip Capacitor
Chip Diode
Chip Transistor
Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022

NOTE:

	KEH-M3000B/EW	KEH-M3000B/IT
IL801-805	CEL1013	CEL-147
IL806	DELETE	CEL-147

TUNER AMP UNIT

Q451, 452,
Q501
Q502, 506, 803
Q503, 507, 656, 806, 814 815
Q504
Q505
Q508, 509, 754, 756, 759
Q510, 816, 819
Q551, 652, 653, 655, 659, 816, 819
Q651, 660
Q654, 751, 752
Q657
Q658, 807, 808, 813, 817, 818, 820
Q753, 755
Q757, 758
Q760, 853
Q804, 854
Q805, 811
Q809, 812
Q851, 852

FM/AM TUNER UNIT
ANT
GND
AM TV
AM VCO
AM OUT
SEEK
AM+B
AM IF
AM SL
LOC. L
LOC. H
FM TV
FM SD
FM SL
FM+B
FMVCO
GND
ST
R OUT
L OUT
Q504
Q502
Q503
Q505
Q506
Q507
D501
D502
D503
D504
D505
D506
D507
D508
D509
D510
D511
D518
D514
–23.7dBs
–24.1dBs
BUFFER
FM 2.1V
AM 2.6V
TAPE 6.9V
CD 6.2V
FM/AM+B SWITCH
IC801 TA8214K
BUS BUFFER
IC502 TC74HC125AP
BDATA
BSRQ
CK
BRXEN
BRST
Q510
Q851
Q852
Q853
Q854
Q855
Q856
Q857
Q858
Q859
Q860
Q861
Q862
Q863
Q864
Q865
Q866
Q867
Q868
Q869
Q870
Q871
Q872
Q873
Q874
Q875
Q876
Q877
Q878
Q879
Q880
Q881
Q882
Q883
Q884
Q885
Q886
Q887
Q888
Q889
Q890

	2SD1468S
	2SC2498
	2SC2458
6, 814 815	DTC124ES
	2SC3113
	2SK330
6, 759	2SA1048
	DTA124ES
5, 659, 816, 819	DTC124EL
	DTA124EL
	2SC4038LN
	2SB772
3, 817, 818, 820	DTC114TS
	2SA1561
	DTC314TL
	DTA114EL
	DTC114TL
	2SB1243
	DTB123ES
	2SC3327

D251, 501, 502, 504, 505, 506, 507, 508, 509, 510, 511, 514, 601, 602, 603, 604, 605, 606, 651, 652, 653, 655, 656, 752, 807, 810	1SS133
D503	HZS3R0EB2
D518	1S1555
D654	HZS8R2JB2
D751	RD3R6ESB1
D801	ERC04-02F
D802, 808, 809	ERA15-02VH
D803	HZS6R8JB2
D804	HZS5R6JB2
D805	MA700
D806, 856	HZS6R8JB2
S451	CSG-207
VR451/S452	CCS1156
VR452, 453	CCS1158

ISOLATOR

VOLUME P.C.BOARD

LAT AMP TONE CONTROL AMP

MUTE

-21.9dBs

POWER AMP

-22.2dBs

+20.5dBs

+20.2dBs

-19.9dBs

ANT

PRE OUT

Lch+

Lch-

Rch+

Rch-

BACK UP

GND

ACC

A.ANT

SW ACC

B REMOTO

B.UP

POWER SW

SOURCE

QR SW

QR SWITCH

S801:CSN-078

TA L

TA R

-24.0dBs

-23.1dBs

-73.8dBs

ACC

TAP PW

TAP LD

B SEN

ACC SENSOR

PRE AMP P.C.BOARD

-17.1dBs

CD-M

BACK UP SENSOR

RESET S915

TAP LD

TAP PW

ACC

MC MUTE

S901-915:CSG-255

KEY BOARD UNIT

TEST TAPE
315Hz 0dB

S1:FWD/REV
ESH1002

P.C.BOARD
UNIT

HEAD:EPB1006

SOLENOID
EXP1001

MOTOR UNIT
EXA1033

SWITCH P.C.BOARD

S1,2:ESN1001
S3:HSK-126

TUNER AMP UNIT
Consists of
MOTHER P.C. BOARD
VOLUME P.C. BOARD
LAMP P.C. BOARD
PRE AMP P.C. BOARD

SWITCHES:

- VOLUME P.C.BOARD
  - S451:LOUDNESS SWITCH ..... ON — OFF
  - S452-1:SOURCE SWITCH ..... ON — OFF
  - S452-2:TUNER POWER SWITCH ... ON — OFF
- SWITCH P.C.BOARD
  - S1:MUTE SWITCH ..... ON (EJECT) — OFF (PLAY)
  - S2:MOTOR SWITCH ..... ON — OFF
  - S3:TAPE/TUNER SWITCH ..... TUNER — TAPE
- P.C.BOARD
  - S1:FWD/REV SWITCH ..... FWD — REV

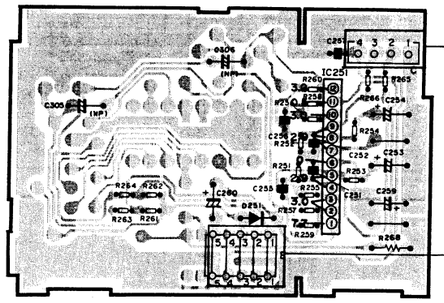
The underlined indicates the switch position.

Fig. 11

13. CONNECTION DIAGRAM (KEH-M3000B/EW, IT)

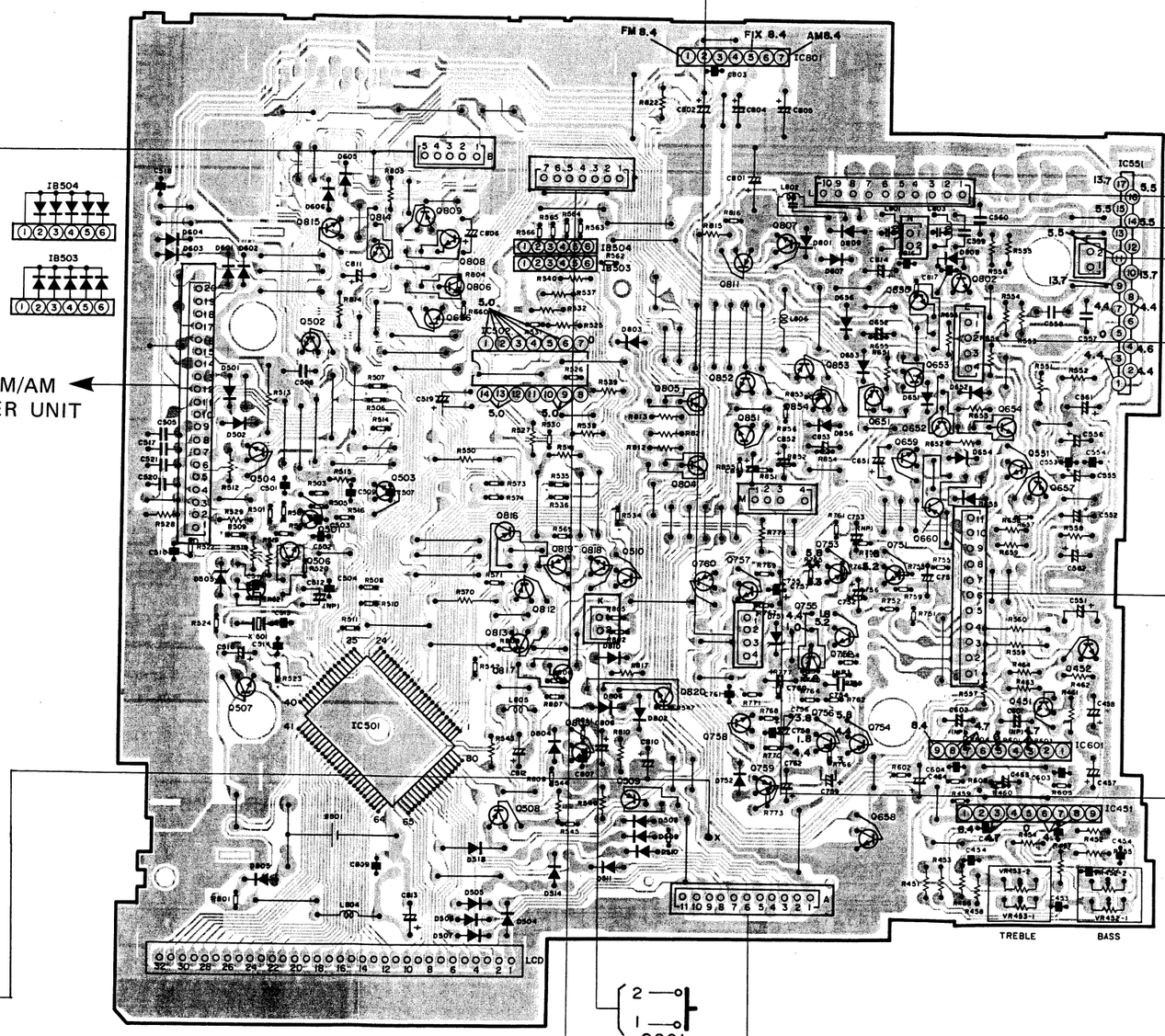
PREAMP P.C.BOARD

IC,Q IC251



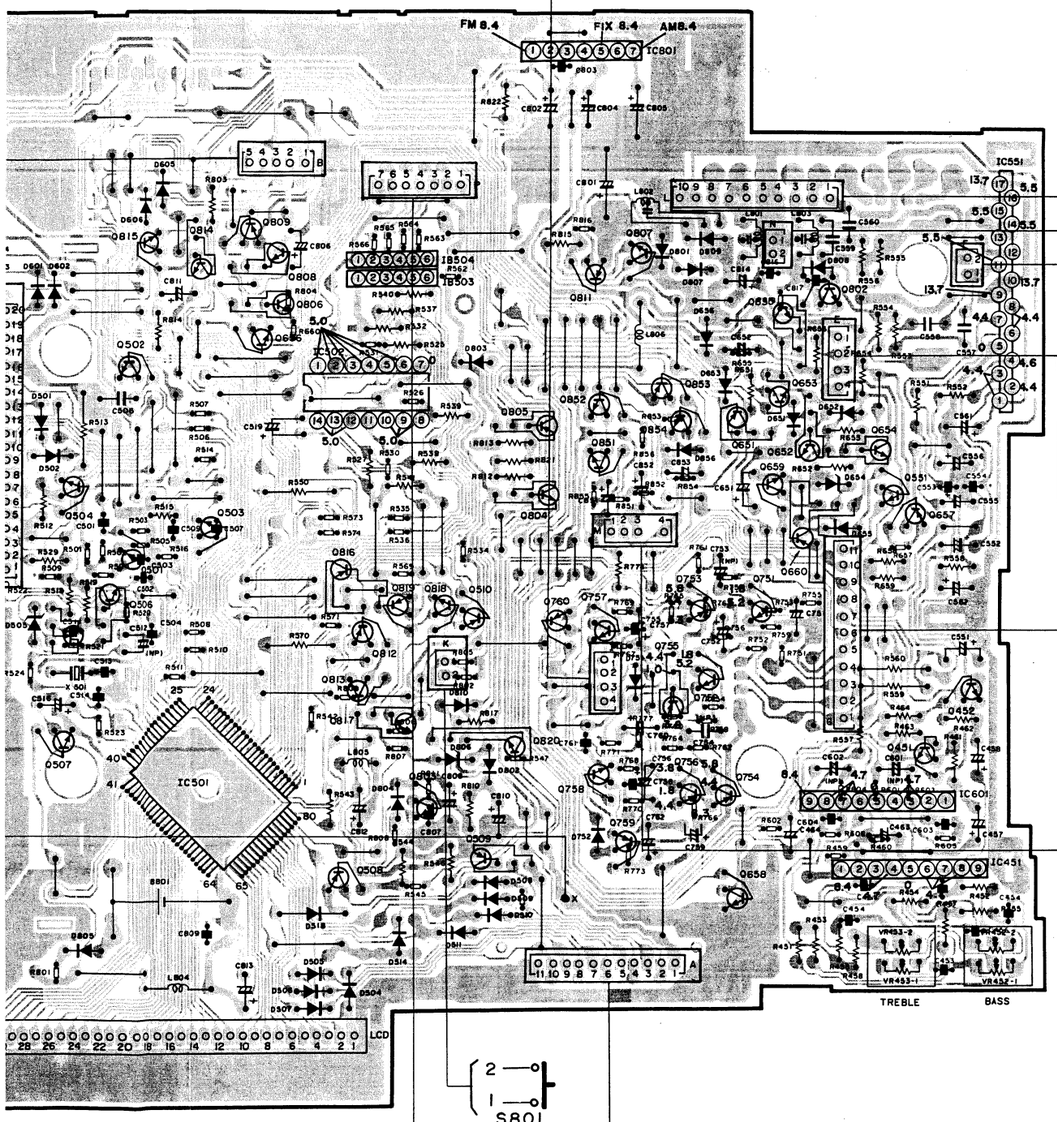
MOTHER P.C.BOARD

Q502 Q501 Q815 Q814 Q809 Q808 Q806 Q656 IC502 IC801 Q807 Q811 Q805 Q852 Q853 Q655 Q653 Q802 IC551
Q504 Q503 Q816 Q812 Q819 Q818 Q510 Q804 Q760 Q851 Q757 Q854 Q753 Q651 Q659 Q751 Q652 Q660 Q654 Q551 Q657
IC,Q Q505 Q506 Q507 IC501 Q813 Q817 Q803 Q508 Q509 Q820 Q758 Q759 Q755 Q756 Q752 Q754 Q658 IC601 IC451 Q451 Q452

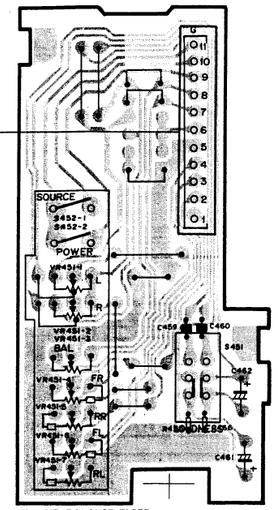


:R P.C.BOARD

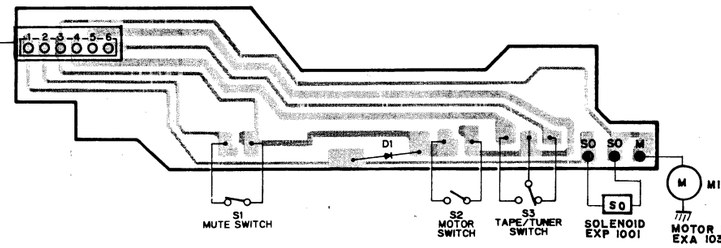
502 Q501 Q815 Q814 Q809 Q808 Q806 Q656 IC502 IC801 Q807 Q811 Q805 Q852 Q853 Q655 Q653 Q802 IC551
04 Q503 Q816 Q812 Q819 Q818 Q510 Q804 Q760 Q851 Q757 Q854 Q753 Q651 Q659 Q751 Q652 Q660 Q654 Q551 Q657
05 Q506 Q507 IC501 Q813 Q817 Q803 Q508 Q509 Q820 Q758 Q759 Q755 Q756 Q752 Q754 Q658 IC601 IC451 Q451 Q452



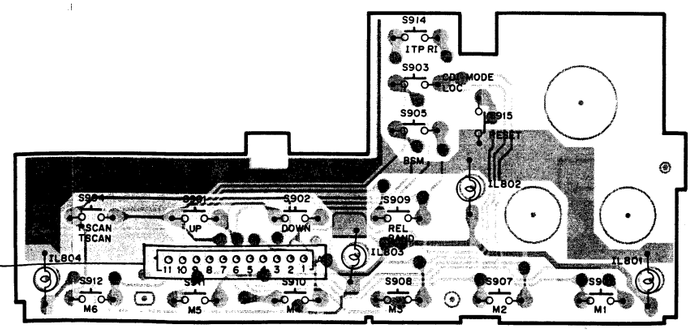
VOLUME P.C.BOARD



SWITCH P.C.BOARD



KEY BOARD UNIT



TO FM/AM TUNER UNIT

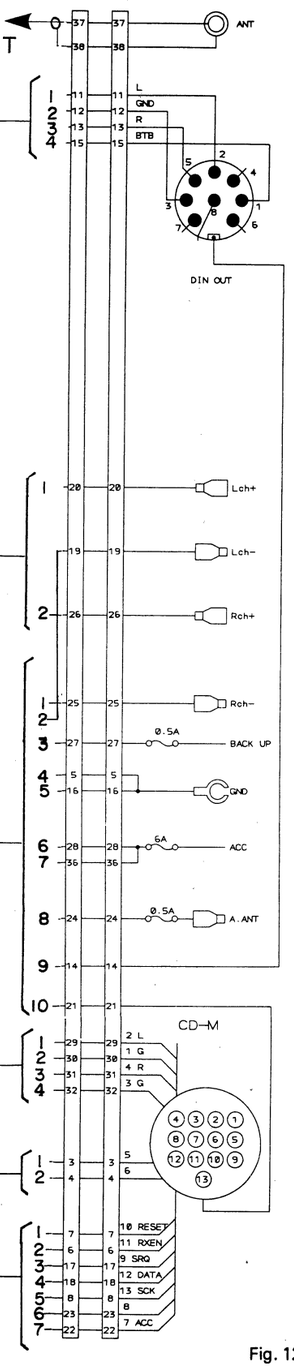


Fig. 12

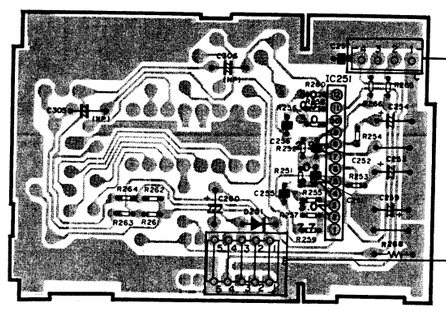
14. CONNECTION DIAGRAM (KEH-M3000QR/UC, KEH-M3002QR/ES)

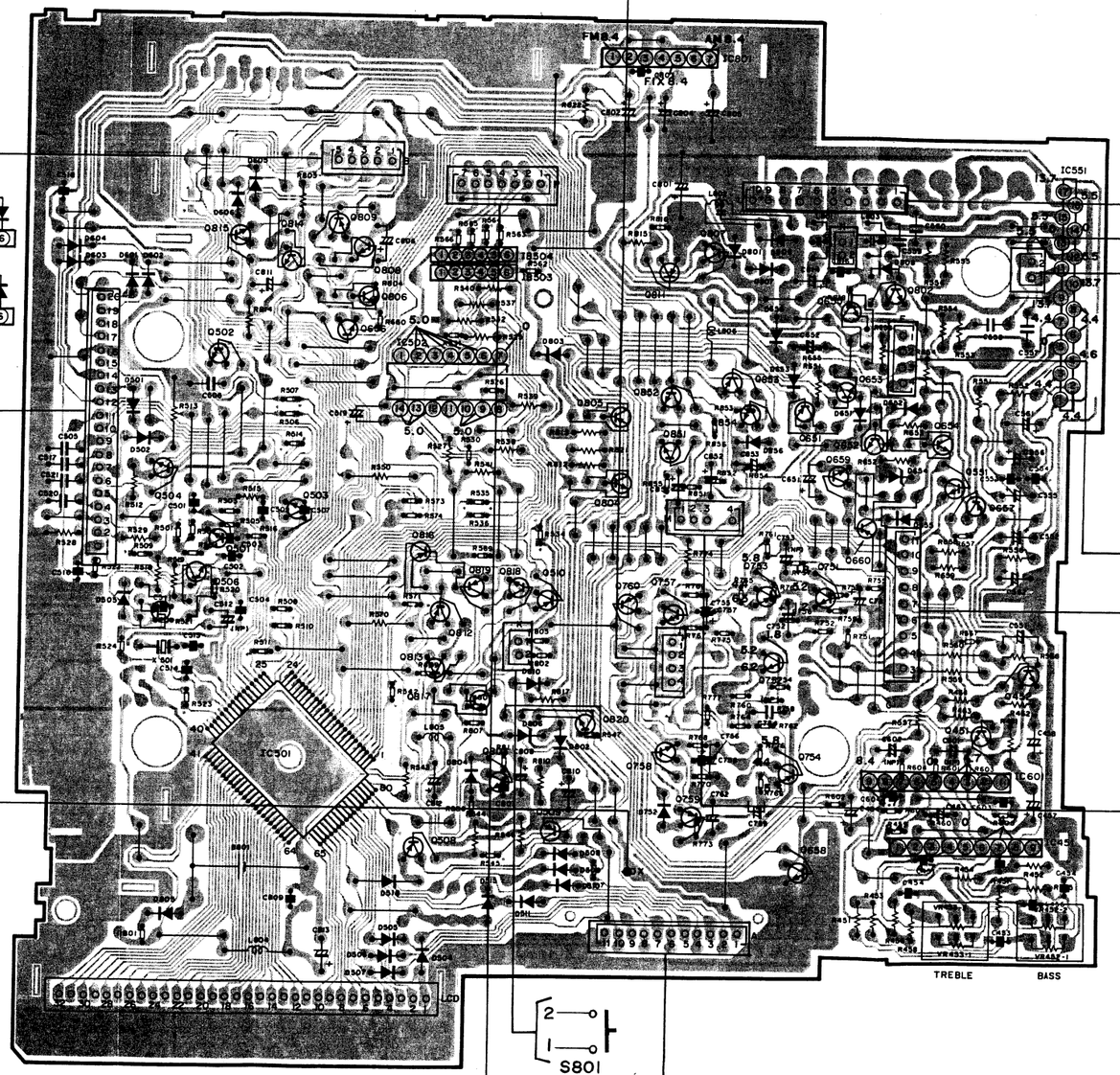
MOTHER P.C.BOARD

IC,Q Q502 Q501 Q815 Q814 Q809 Q808 Q806 Q656 IC502 IC801 Q807 Q811 Q805 Q852 Q853 Q655 Q653 Q802 IC551
Q504 Q503 Q816 Q812 Q819 Q818 Q510 Q804 Q760 Q851 Q757 Q854 Q753 Q651 Q659 Q751 Q652 Q660 Q654 Q551 Q657
IC,Q Q505 Q506 IC501 Q813 Q817 Q803 Q508 Q509 Q820 Q758 Q759 Q752 Q754 Q658 IC601 IC451 Q451 Q452

PREAMP P.C.BOARD

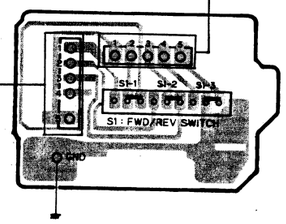
IC,Q IC251



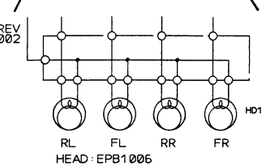


TO FM/AM TUNER UNIT

P.C.BOARD UNIT

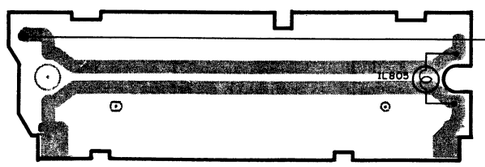


S1 : FWD/REV ESH1002



HEAD : EPB1006

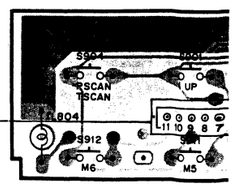
LANP P.C.BOARD



SWITCH P.C.BOARD

MUT

KEY BOARD UNIT



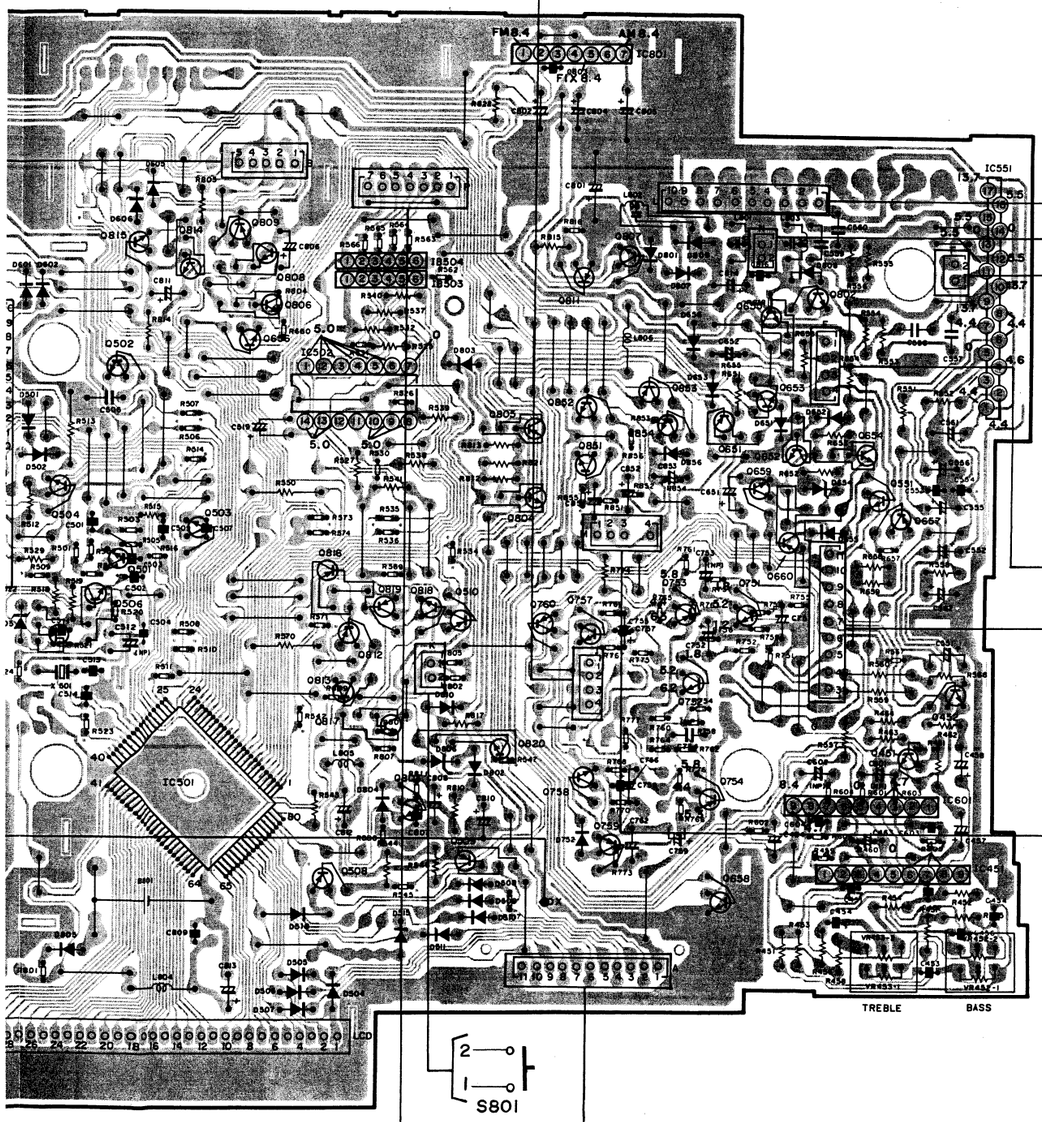
TREBLE BASS

S801

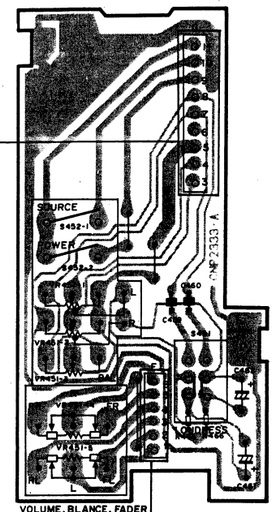
QR/ES)

R P.C.BOARD

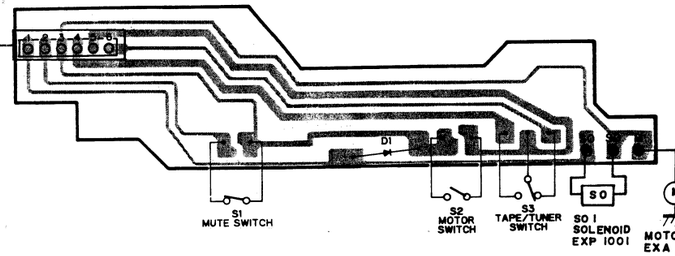
02 Q501 Q815 Q814 Q809 Q808 Q806 Q656 IC502 IC801 Q807 Q811 Q805 Q852 Q853 Q655 Q653 Q802 IC551
4 Q503 Q816 Q812 Q819 Q818 Q510 Q804 Q760 Q851 Q757 Q854 Q753 Q651 Q659 Q751 Q652 Q660 Q654 Q551 Q657
5 Q506 IC501 Q813 Q817 Q803 Q508 Q509 Q820 Q758 Q759 Q752 Q754 Q658 IC601 IC451 Q451 Q452



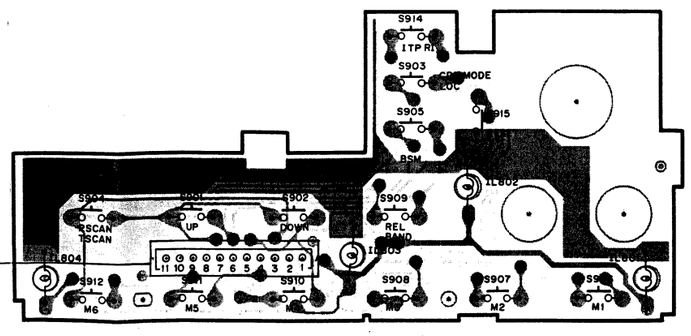
VOLUME P.C.BOARD



SWITCH P.C.BOARD



KEY BOARD UNIT



TO FM/AM TUNER UNIT

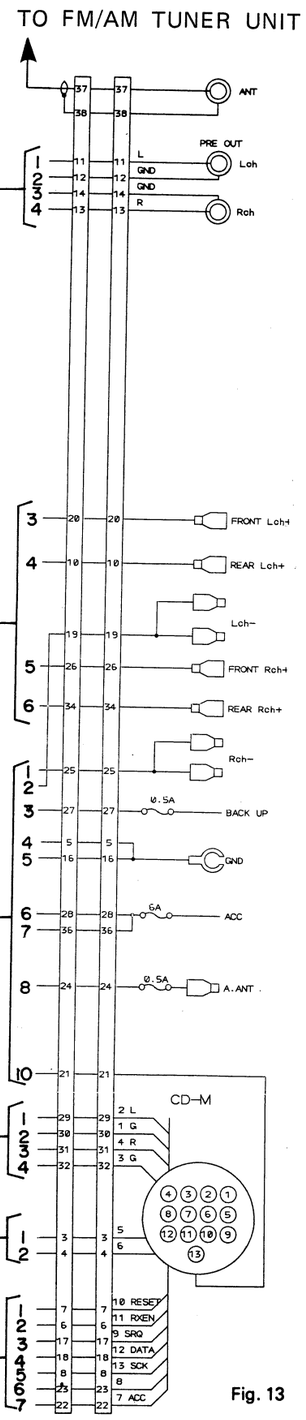


Fig. 13

15. SCHEMATIC CIRCUIT DIAGRAM (KEH-M3000QR/UC, KEH-M3002QR/ES)

NOTE:
- Chip Resistor
- Chip Capacitor
- Chip Diode
- Chip Transistor

Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022

NOTE:

	KEH-M3000QR/UC	KEH-M3002QR/ES
D515	DELETED	1SS133

TUNER AMP UNIT

Q451, 452,
Q501
Q502, 506, 803
Q503, 656, 806, 814, 815
Q504
Q505
Q508, 509, 754, 759
Q510, 816, 819
Q551, 652, 653, 655, 659, 816, 81
Q651, 652
Q654, 751, 752
Q657
Q658, 807, 808, 813, 817, 818, 82
Q753
Q757, 758
Q760, 853
Q804, 854
Q805, 811
Q809, 812
Q851, 852

FM/AM TUNER UNIT

ANT

GND

–23.7dBs

BUFFER
FM 2.1V
AM 2.6V
TAPE 6.9V
CD 6.2V

–24.1dBs

FLAT AMP

FM/AM+B SWITCH

BUS FUFFER

SYSTEM POWER SWITCH

IC501
PD4235
SYSTEM CONTROL

VCO AMP

LOOP FILTER

LCD
CAW1089

MOTHER P.C.BOARD

LAMP P.C.BOARD

KEY BOAR

	2SD1468S
	2SC2498
	2SC2458
4, 815	DTC124ES
	2SC3113
	2SK330
9	2SA1048
	DTA124ES
5, 659, 816, 819	DTC124EL
	DTA124EL
	2SC4038LN
	2SB772
3, 817, 818, 820	DTC114TS
	2SA1561
	DTC314TL
	DTA114EL
	DTC114TL
	2SB1243
	DTB123ES
	2SC3327

D251, 501, 502, 504, 505, 506, 507, 508, 509, 510, 511, 515, 601, 602, 603, 604, 605, 606, 651, 652, 653, 655, 656, 752, 807, 810	1SS133
D503	HZS3R0EB2
D518	1S1555
D654	HZS8R2JB2
D801	ERC04-02F
D802, 808, 809	ERA15-02VH
D803	HZS6R8JB2
D804	HZS5R6JB2
D805	MA700
D806, 856	HZS6R8JB2
S451	CSG-207
VR451/S452	CCS1157
VR452, 453	CCS1158
IL805	CEL1025

ISOLATOR

MUTE

POWER AMP

VOLUME P.C.BOARD

FADER

LOUDNESS

BALANCE

VOLUME

TUNER POWER

SOURCE

TONE CONTROL AMP

TA7555BS

MUTE

−21.9dBs

−22.3dBs

EQ AMP

TA8162SN

−24.0dBs

−23.1dBs

−73.8dBs

PRE AMP P.C.BOARD

ACC SENSOR

BACK UP SENSOR

SW ACC

B REMOTO

B.UP

POWER SW

SOURCE

QR SW

TA L

TA R

ACC

TAP PW

TAP LD

B SEN

TAP LD

TAP PW

ACC

MC MUTE

QR SWITCH

S801:CSN-078

−17.1dBs

CD-M

ANT

−2.9dBs PRE OUT

Lch

GND

GND

Rch

+20.0dBs

FRONT Lch+

REAR Lch+

Lch−

FRONT Rch+

REAR Rch+

Rch−

BACK UP

GND

ACC

A.ANT

10 RESET

11 RXEN

9 SRQ

12 DATA

13 SCK

8

7 ACC

RESET S915

IL801-804:CEL1025

S901-915:CSG-255

TEST TAPE
315Hz 0dB

S1:FWD/REV
ESH1002

HEAD:EPB1006

SOLENOID
EXP1001

MOTOR UNIT
EXA1033

S1,2:ESN1001
S3:HSK-126

D1
F1SR35-100A

P.C.BOARD UNIT

SWITCH P.C.BOARD

TUNER AMP UNIT
Consists of
MOTHER P.C. BOARD
VOLUME P.C. BOARD
LAMP P.C. BOARD
PRE AMP P.C. BOARD

SWITCHES:

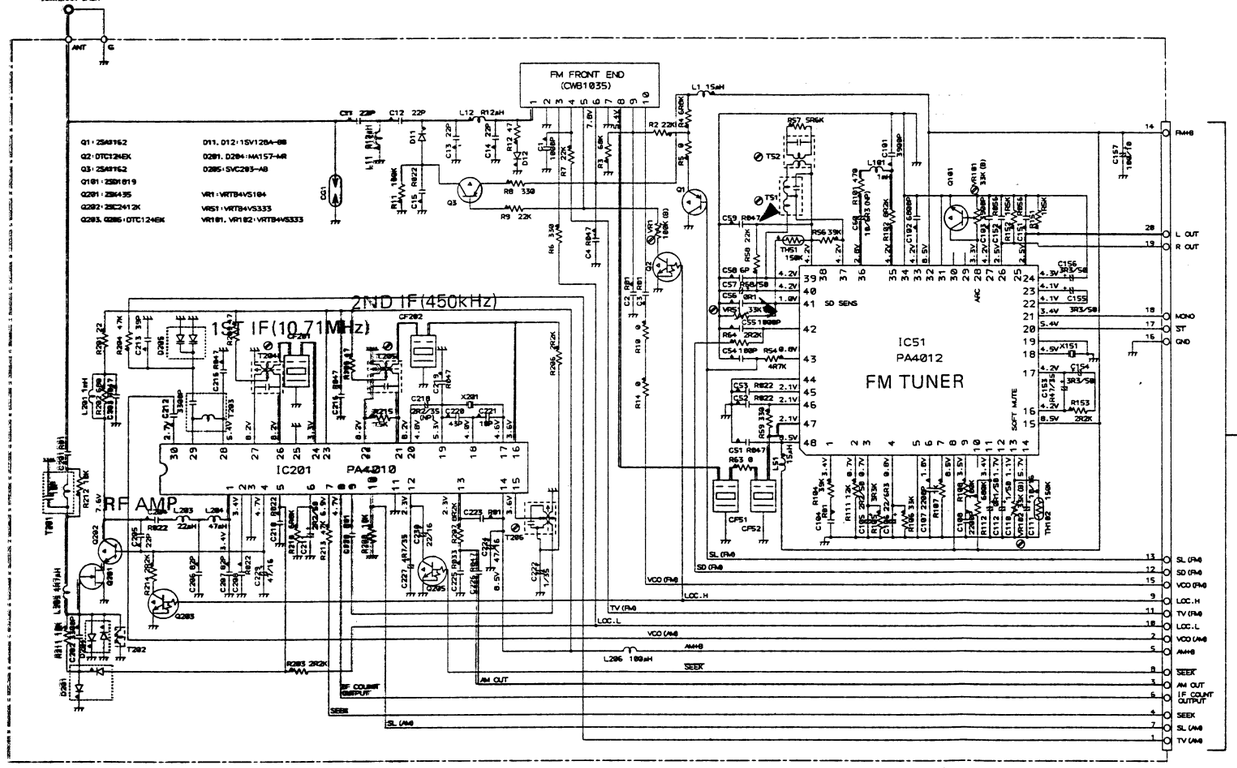
- VOLUME P.C.BOARD
  - S451:LOUDNESS SWITCH ..... ON — OFF
  - S452-1:SOURCE SWITCH..... ON — OFF
  - S452-2:TUNER POWER SWITCH ... ON — OFF
- SWITCH P.C.BOARD
  - S1:MUTE SWITCH ..... ON (EJECT) — OFF (PLAY)
  - S2:MOTOR SWITCH ..... ON — OFF
  - S3:TAPE/TUNER SWITCH ..... TUNER — TAPE
- P.C.BOARD
  - S1:FWD/REV SWITCH ..... FWD — REV

The underlined indicates the switch position.

Fig. 14

16. CIRCUIT DIAGRAM AND P.C. BOARDS PATTERN

16.1 FM/AM TUNER UNIT (KEH-M3000QR/UC)



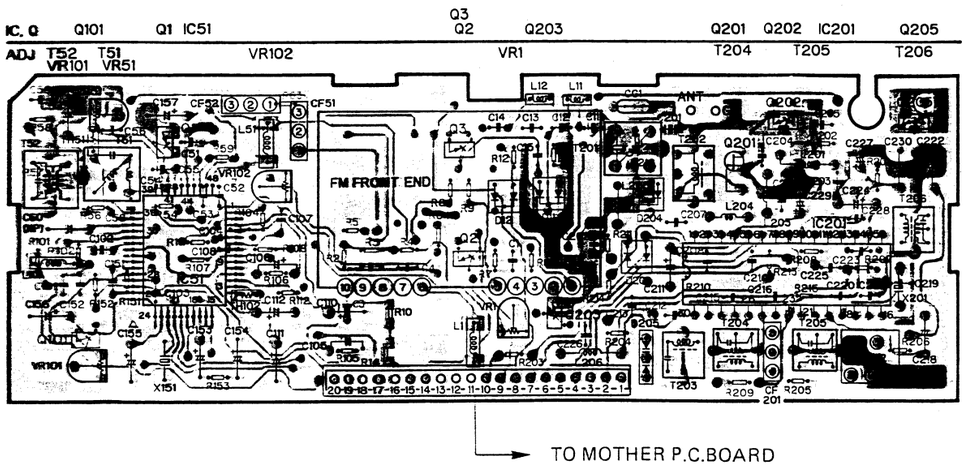
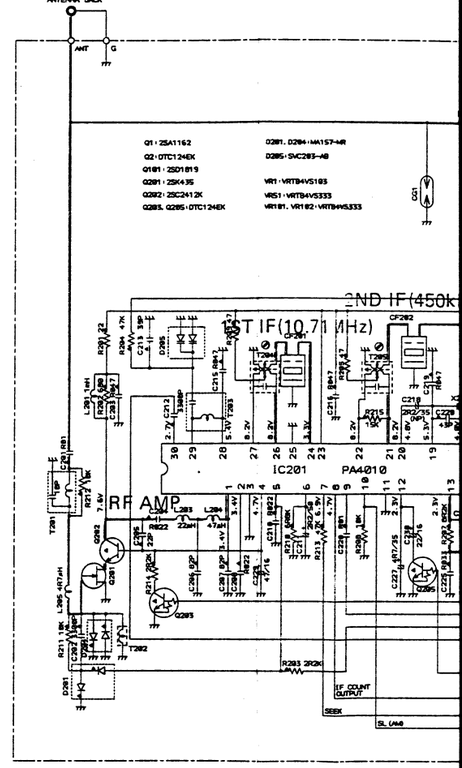

IC, Q Q101 Q1 IC51 Q3 Q2 Q203 Q201 Q202 IC201 Q205
ADJ T52 T51 VR101 VR51 VR102 VR1 T204 T205 T206
FM FRONT END
ANT
TO MOTHER P.C.BOARD

Fig. 15

16.2 FM/AM TUNER UNIT (KEH-M3002QR/ES)



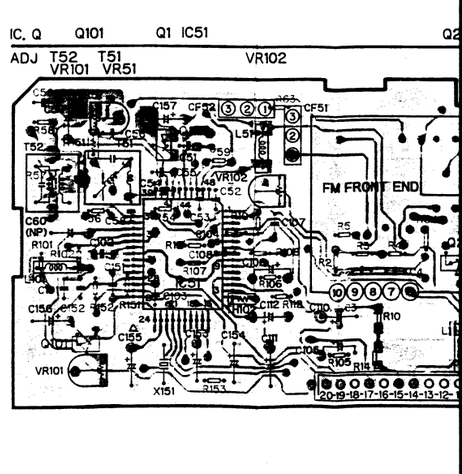


Fig. 16

PATTERN

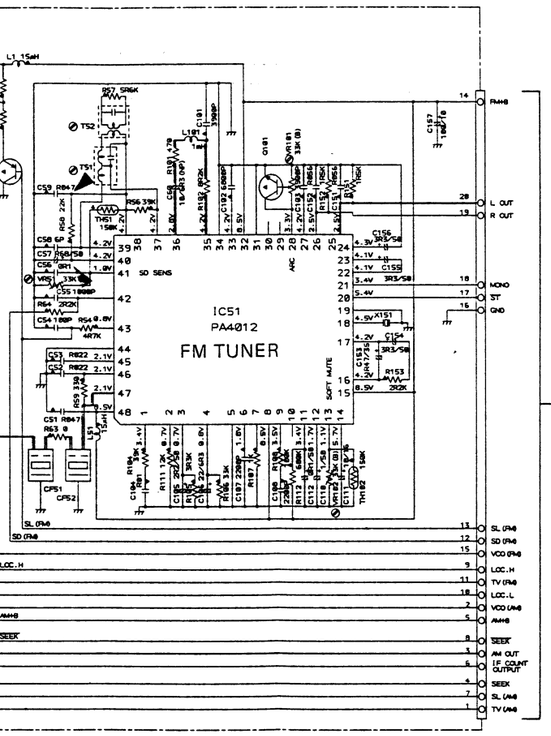


Fig. 15

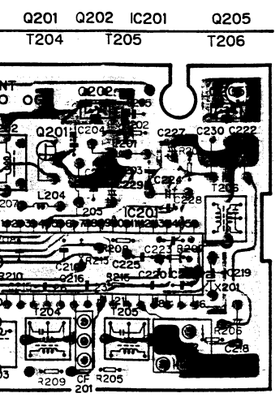


Fig. 16

16.2 FM/AM TUNER UNIT (KEH-M3002QR/ES)

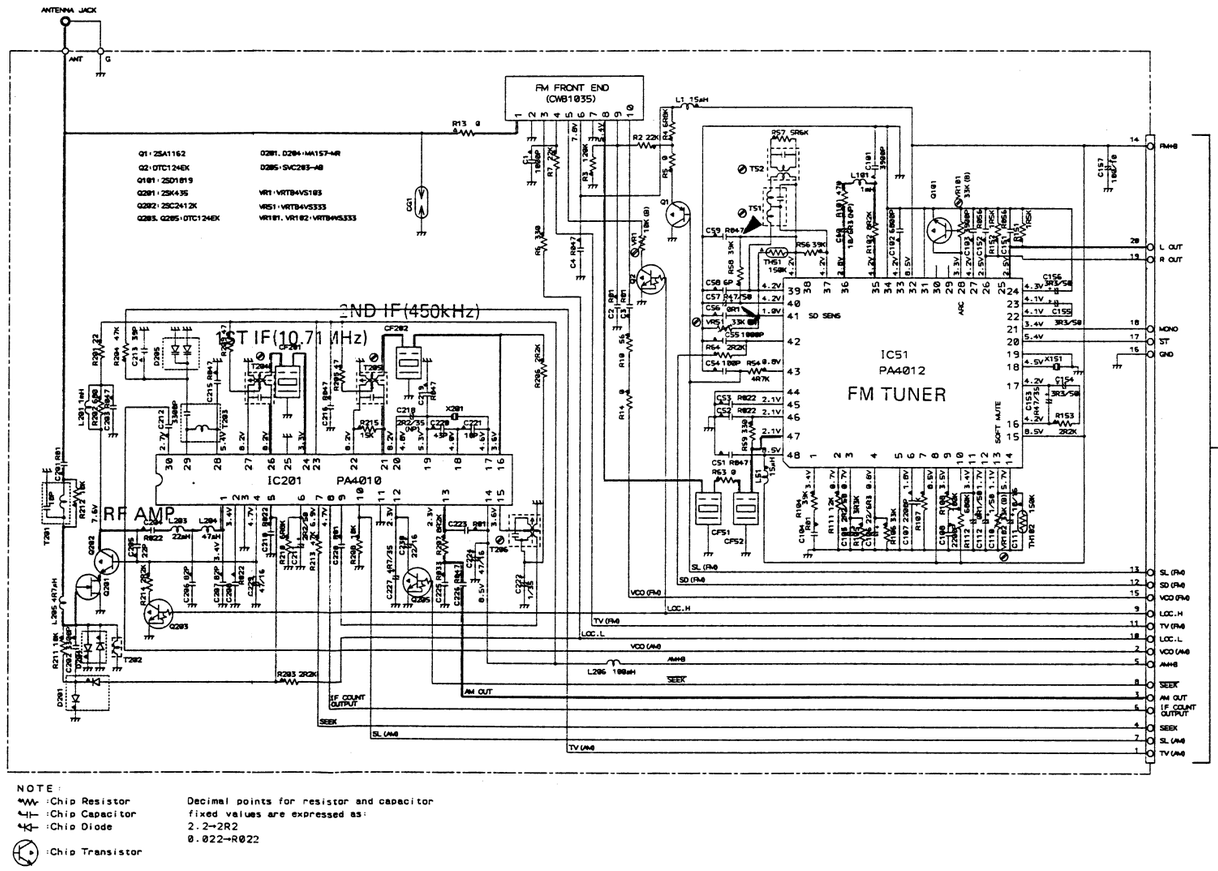


Fig. 17

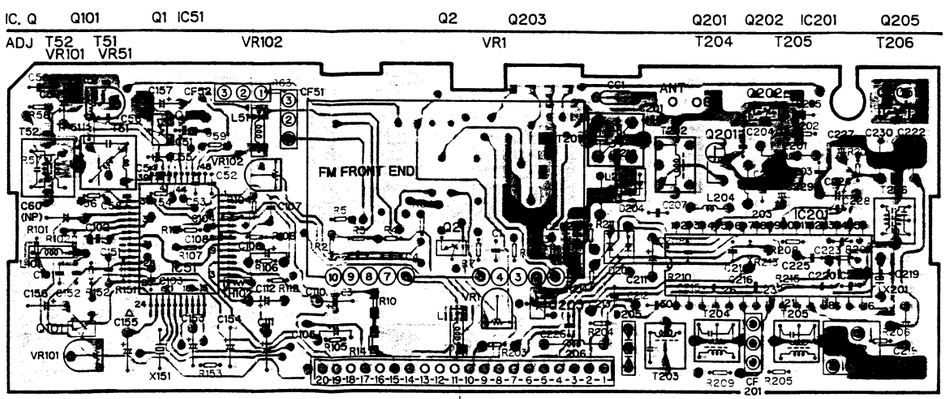
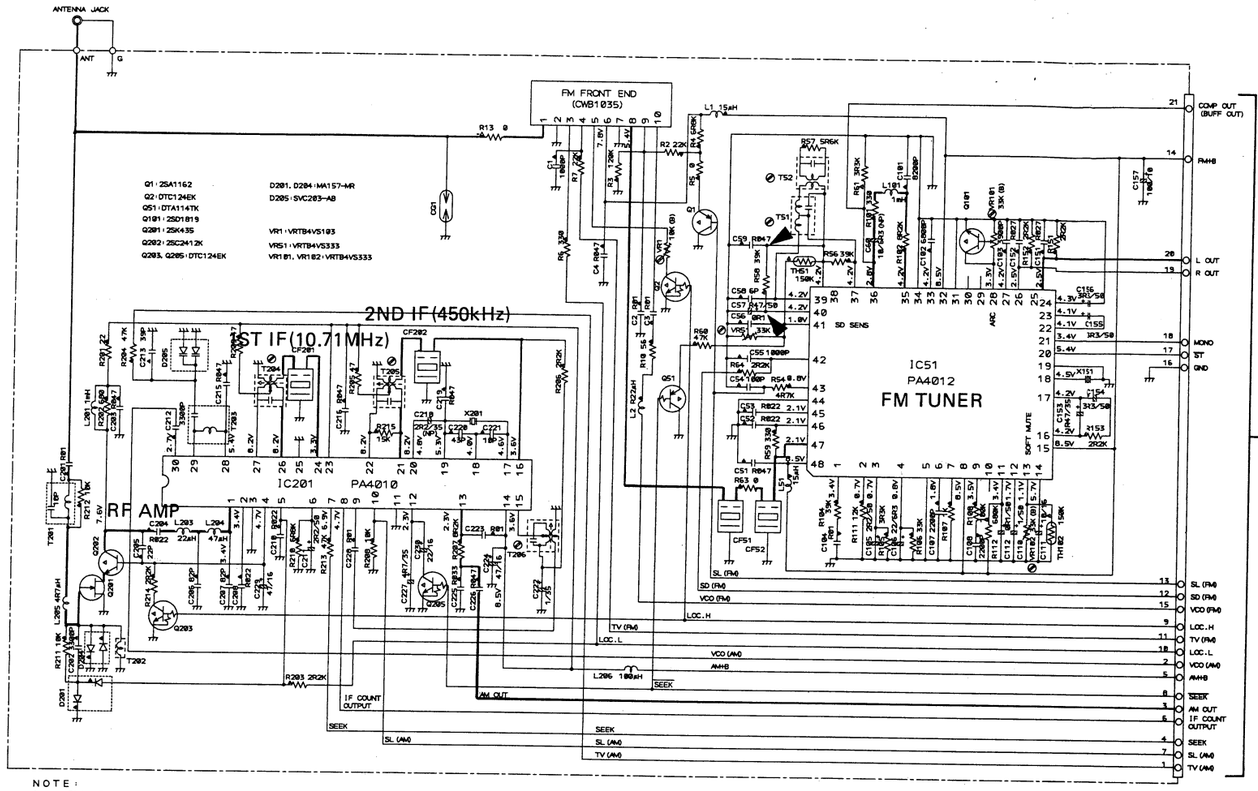


Fig. 18

16.3 FM/AM TUNER UNIT (KEH-M3000SDK/WG)



NOTE :

:Chip Resistor
:Chip Capacitor
:Chip Diode
:Chip Transistor

Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022

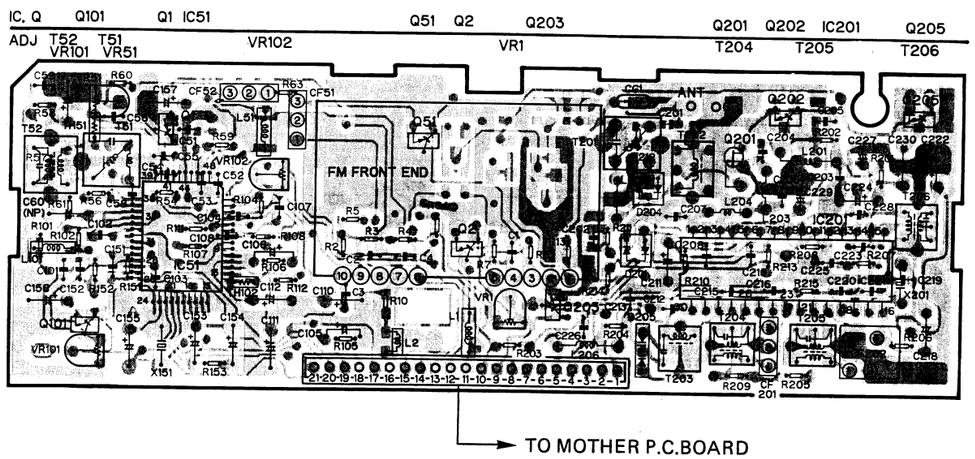
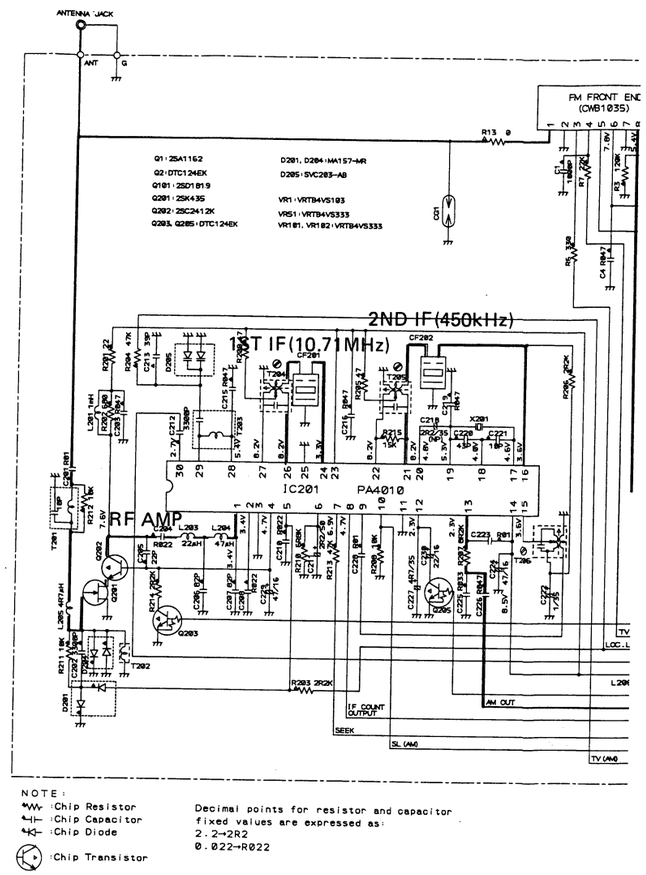

IC, Q Q101 Q1 IC51 Q51 Q2 Q203 Q201 Q202 IC201 Q205
ADJ T52 T51 VR102 VR1 T204 T205 T206
VR101 VR51
FM FRONT END
ANT
TO MOTHER P.C.BOARD

Fig. 19

16.4 FM/AM TUNER UNIT (KEH-M3000B/EW, IT)



NOTE :

:Chip Resistor
:Chip Capacitor
:Chip Diode
:Chip Transistor

Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022

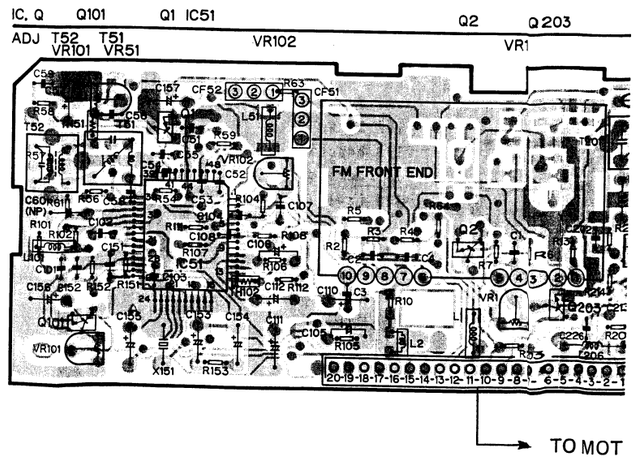
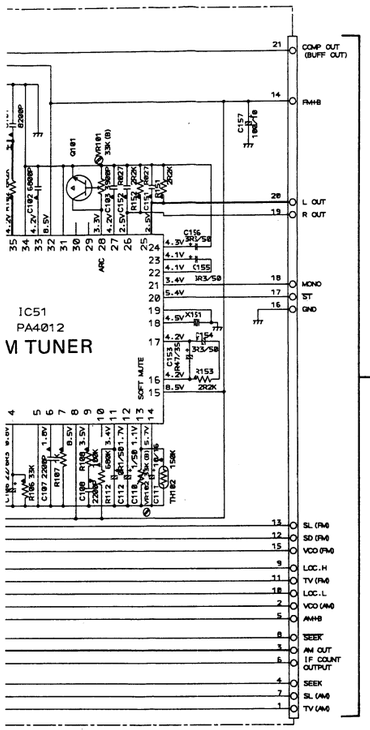


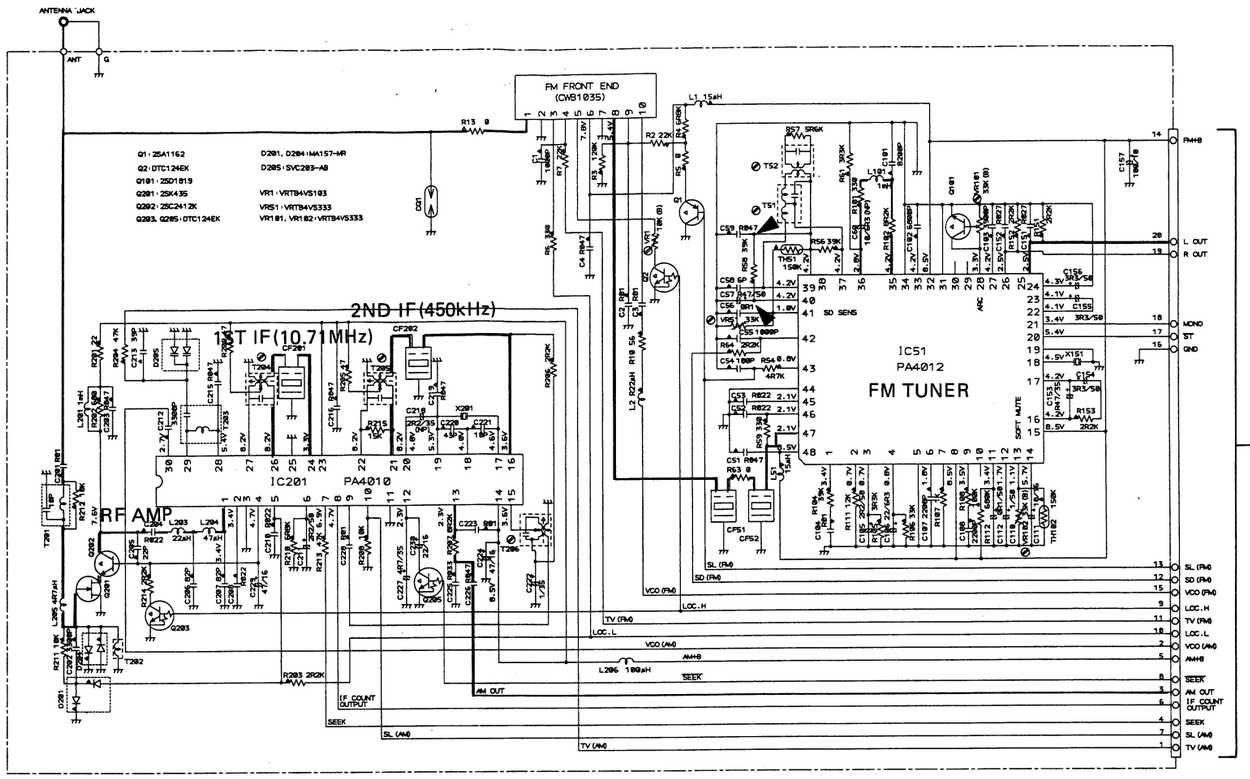
Fig. 20

16.4 FM/AM TUNER UNIT (KEH-M3000B/EW, IT)



TO MOTHER P.C.BOARD

Fig. 19



TO MOTHER P.C.BOARD

Fig. 21

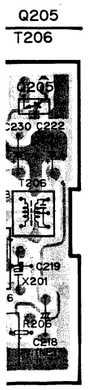
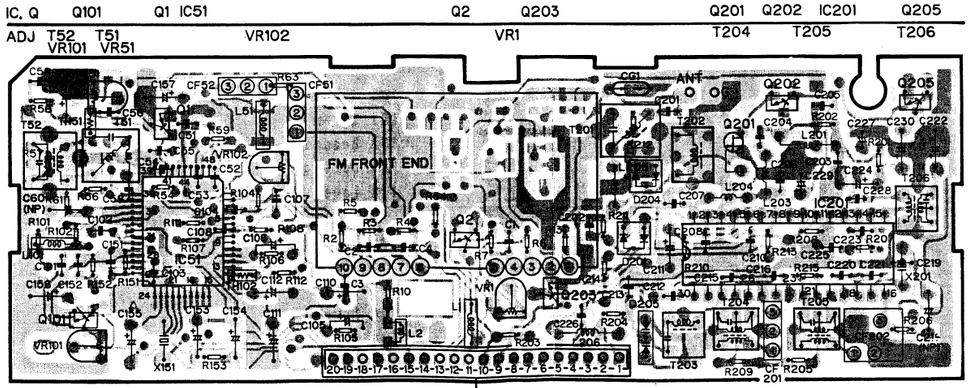


Fig. 20

NOTE :
- Chip Resistor
- Chip Capacitor
- Chip Diode
- Chip Transistor

Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022



TO MOTHER P.C.BOARD

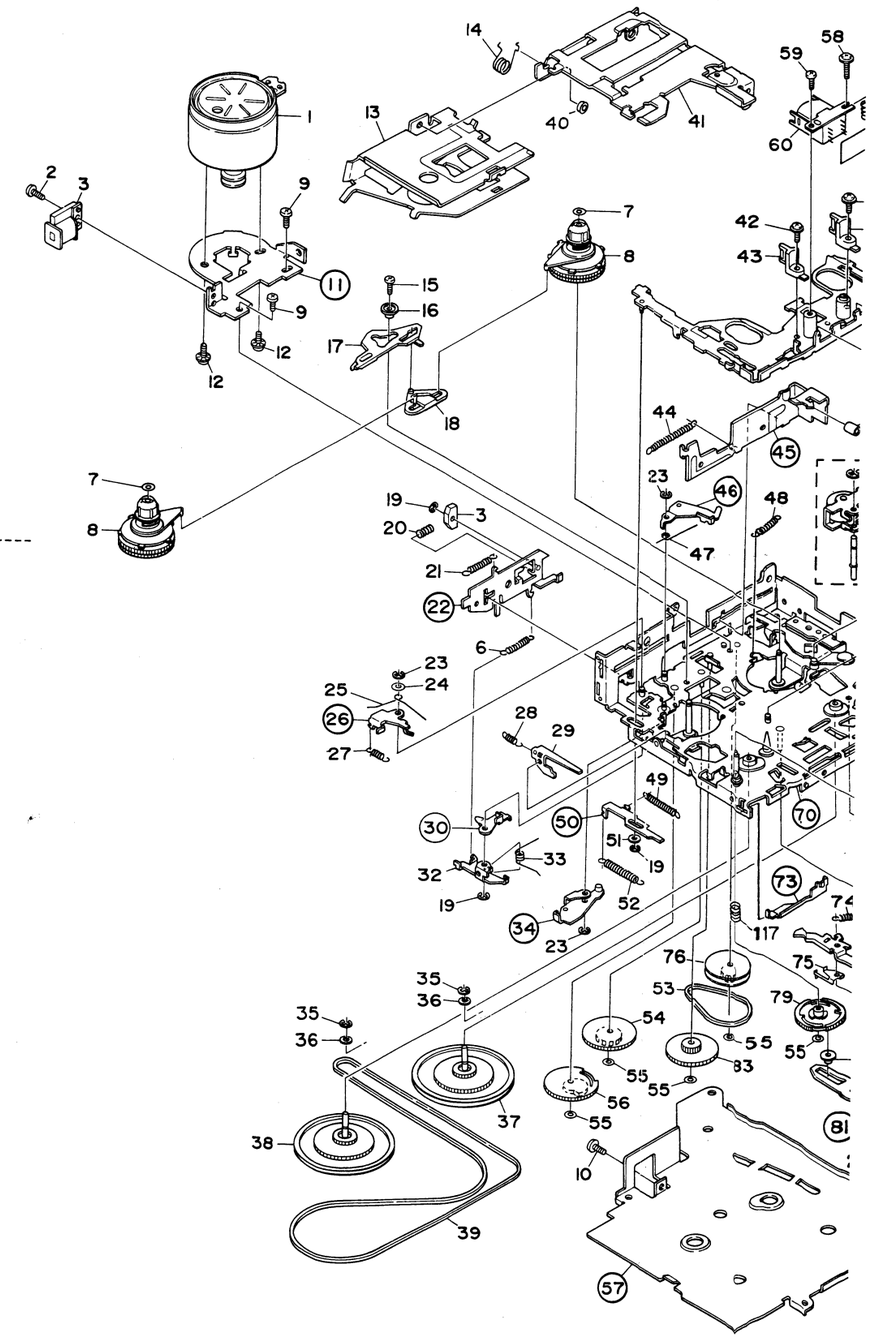
Fig. 22

17. CASSETTE MECHANISM ASSY EXPLODED VIEW

• Parts List

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Motor Unit	EXA1033	46	Arm	
2	Screw	EBA1008	47	Spring	EBH1040
3	Solenoid	EXP1001	48	Spring	EBH1041
4	·····		49	Spring	EBH1021
5	·····		50	Lever	
6	Spring	EBH1056	51	Washer	EBE1001
7	Washer	CBF-166	52	Spring	EBH1009
8	Reel Unit	EXA1032	53	Belt	ENT1009
9	Screw	BMZ23P030FMC	54	Gear	ENV1034
10	Screw	BSZ23P040FMC	55	Washer	CBF-135
11	Bracket		56	Gear	ENV1050
12	Screw	PMS26P025FUC	57	Cover	
13	Cassette Holder	ENC1061	58	Screw	EBA1019
14	Spring	EBH1019	59	Screw	BMZ20P050FMC
15	Screw	EBA1009	60	Head	EPB1006
16	Collar	ELA1042	61	Spring	EBH1065
17	Arm	ENV1032	62	P.C.Board	ENP1012
18	Arm	ENV1045	63	Arm	
19	Washer	YE12FUC	64	Head Base Unit	EXA1036
20	Spring	EBH1038	65	Spring	EBH1004
21	Spring	EBH1012	66	Spring	EBH1003
22	Lever Unit		67	Cushion	CNV1667
23	Washer	YE15FUC	68	Washer	YE20FUC
24	Washer	CBF-165	69	Pinch Roller Unit	EXA1041
25	Spring	EBH1070	70	Chassis Unit	
26	Arm		71	·····	
27	Spring	EBH1060	72	Pulley	ENV1009
28	Spring	EBH1066	73	Lever	
29	Arm	ENC1046	74	Spring	EBH1025
30	Arm		75	Spring	EBL1001
31	·····		76	Pulley	ENV1010
32	Arm	ENC1057	77	Arm	
33	Spring	EBH1008	78	Screw	HBA-147
34	Arm Unit		79	Gear	ENV1035
35	Washer	CBG1001	80	Collar	ELA1018
36	Washer	HBF-179	81	Arm	
37	Flywheel(N)	ENV1029	82	Plug(5P)	
38	Flywheel(R)	ENV1030	83	Gear	ENV1011
39	Belt	ENT1010	84	Arm	
40	Roller	ELA1051	85	Spring	EBH1024
41	Frame Unit	EXA1025	86	Ratchet	
42	Screw	PMS20P040FMC	87	Spring	EBH1018
43	Tape Guide	ENV1016	88	Pinch Roller Unit	EXA1042
44	Spring	EBH1020	89	Arm	
45	Lever		90	Lever	

• Cassette Mechanism Assy



Mark No.	Description	Part No.
91	Spring	EBH1013
92	*	
93	Gear	ENV1043
94	Collar	ELA1032
95	Screw	HBA-212
96	Spring	EBH1007
97	Spring	EBH1006
98	Spring	EBH1058
99	Washer	EBF1005
100	Arm Unit	
101	Gear	ENV1018
102	Gear	ENV1017
103	Spring	EBH1022
104	Arm Unit	EXA1005
105	Plug(6P)	
106	Screw	EBA1017
107	Screw	BMZ20P070FMC
108	Bracket	
109	Spring	EBH1016
110	Lever Unit	
111	Spring	EBH1048
112	Spring	EBH1005
113	Lever	
114	Lever	
115	Arm	
116	Washer	WH23FMC
117	Spring	EBH1067

*)Number 92 is part of the chassis unit and cannot be removed.

• **Cassette Mechanism Assy**

Mark No.	Description	Part No.
91	Spring	EBH1013
92	*	
93	Gear	ENV1043
94	Collar	ELA1032
95	Screw	HBA-212
96	Spring	EBH1007
97	Spring	EBH1006
98	Spring	EBH1058
99	Washer	EBF1005
100	Arm Unit	
101	Gear	ENV1018
102	Gear	ENV1017
103	Spring	EBH1022
104	Arm Unit	EXA1005
105	Plug(6P)	
106	Screw	EBA1017
107	Screw	BMZ20P070FMC
108	Bracket	
109	Spring	EBH1016
110	Lever Unit	
111	Spring	EBH1048
112	Spring	EBH1005
113	Lever	
114	Lever	
115	Arm	
116	Washer	WH23FMC
117	Spring	EBH1067

*) Number 92 is part of the chassis unit and cannot be removed.

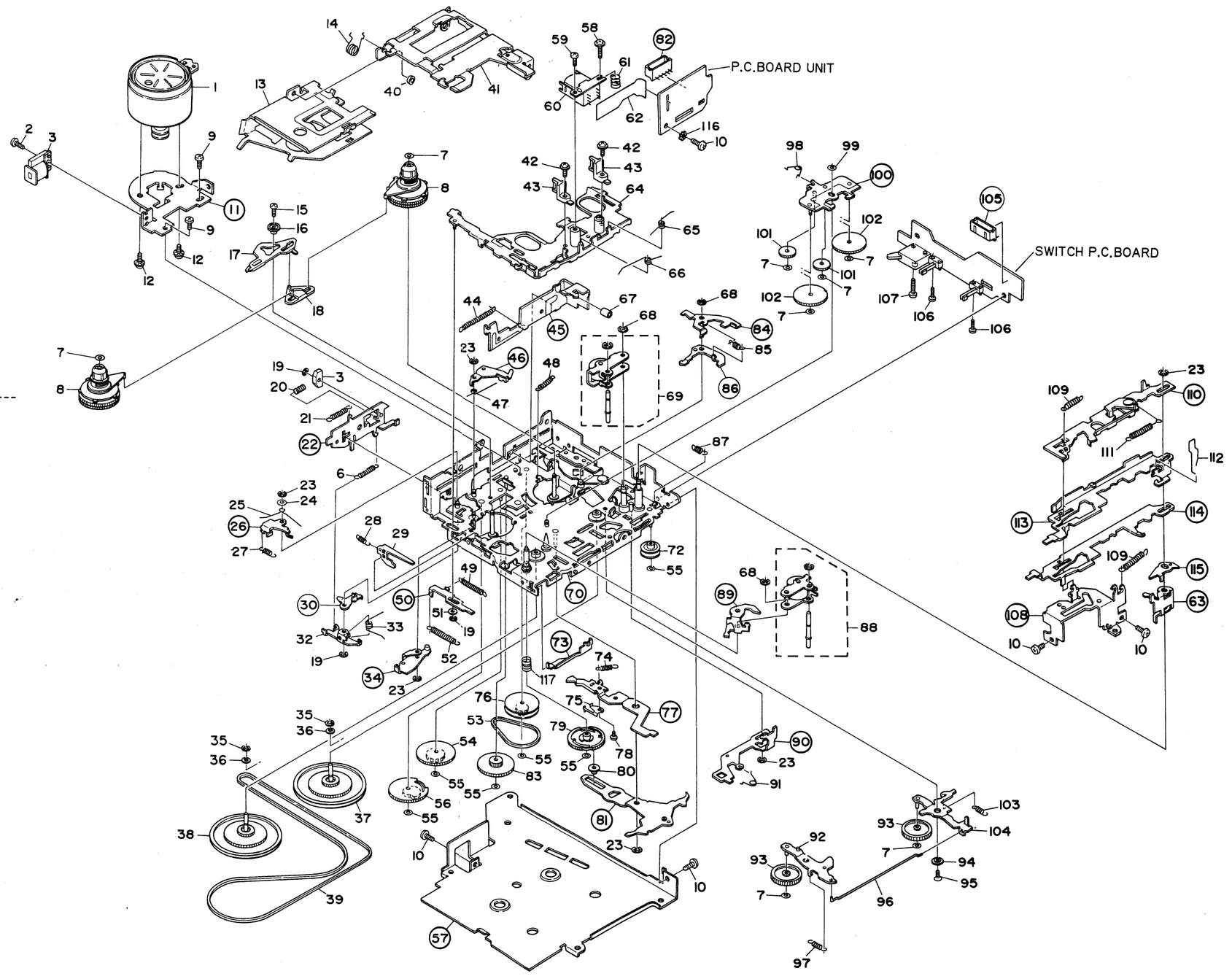


Fig. 23

18. EXPLODED VIEW

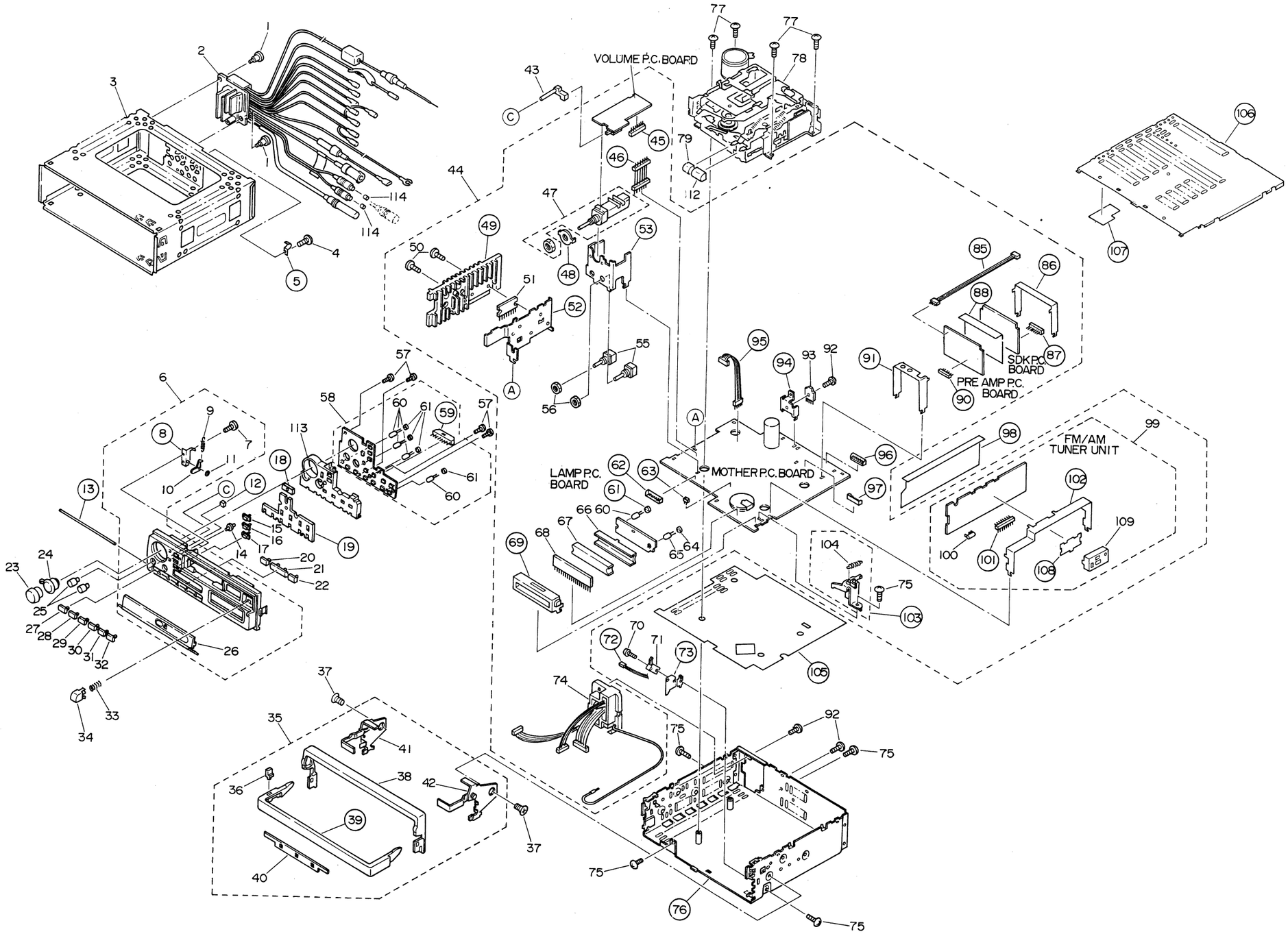


Fig. 24

• Parts List

NOTE:

- *Parts whose parts numbers are omitted are subject to being not supplied.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

• KEH-M3000SDK/WG

Mark No.	Description	Part No.
1	Screw	CBA1073
2	Cord Assy	CDE2764
3	Box	CNB1289
4	Screw	BMZ30P040FMC
5	Clamper	
6	Grille Unit	CXA3436
7	Screw	CBA1149
8	Holder Assy	
9	Sprig	CBH1053
10	Arm	CNV2515
11	Washer	CBF1037
12	Spacer	
13	Shaft	
14	Button(RESET)	CAC2417
15	Button(ITP/RI)	CAC2419
16	Button(MODE/LOC. S/CDI)	CAC2420
17	Button(SDK)	CAC2425
18	Cushion	
19	Cushion	
20	Button(BAND/CLEAR)	CAC2422
21	Button(SEEK/TRACK)	CAC2424
22	Button(SCAN/BSM)	CAC2423
23	Knob	CAA1223
24	Knob	CAA1224
25	Knob	CAA1206
26	Door Unit	CXA3615
27	Button(1)	CAC2432
28	Button(2)	CAC2433
29	Button(3)	CAC2434
30	Button(4)	CAC2435
31	Button(5)	CAC2436
32	Button(6)	CAC2437
33	Sprig	CBH1187
34	Button(<>)	CAC2428
◉ 35	Quick Release Handle Assy	CXA3186
36	Button	CAC2165
37	Screw	CMZ50P080FMC
38	Panel	CNS1812
39	Cover	
40	Handle	CNC3197
41	Handle Unit	CXA3214
42	Handle Unit	CXA3215
43	Button(LOUD)	CAC2418
◉ 44	Tuner Amp Unit	CWM2206
45	Plug	
46	Plug	
47	Volume	CCS1156
48	Spacer	
49	Heat Sink	
50	Screw	BMZ30P120FMC
51	IC	TA8215H
52	Holder	
53	Holder	
54	·····	
55	Volume	CCS1158
56	Nut	CBA-066
57	Screw	BPZ20P060FMC
◉ 58	Key Board Unit	CWM2212
59	Connector	
60	Lamp	CEL1013
61	Bush	CNV-724
62	Connector	
63	Plug	
64	·····	
65	·····	
66	Housing	CNV2422
67	Lens	CNV2421
68	LCD	CAW1089
69	Holder	
70	Screw	CBA-172
71	Switch	CSN-078
72	Connector	
73	Holder	
74	Cord Assy	CDE2766
75	Screw	BMZ30P050FMC
76	Chassis Unit	
77	Screw	BMZ26P050FMC
◉ 78	Cassette Mechanism Assy	EXK1071
79	Button(<<)	CAC2427
80～84	·····	
85	Connector	
86	Holder	
87	Connector	
88	Insulator	
89	·····	
90	Connector	
91	Holder	
92	Screw	BMZ30P060FMC
93	IC	TA8214K
94	Holder	
95	Cord Assy	
96	Plug	
97	Plug	
98	Insulator	
◉ 99	FM/AM Tuner Unit	CWE1166
100	Antenna Jack	CKX1010
101	Plug	
102	Holder	
103	Lever Unit	
104	Sprig	CBH1191
105	Insulator	
106	Case	
107	Insulator	
108	Insulator	
109	FM Front End	CWB1035
110	·····	
111	·····	
112	Button(>>)	CAC2426
113	Lens	CNV2420
114	·····	

Fig. 24

NSP:Non Spare Part

Mark No.	Description	KEH-M3000SDK /WG	KEH-M3000B /EW	KEH-M3000B /IT	KEH-M3000QR /UC	KEH-M3002QR /ES
		Part No.	Part No.	Part No.	Part No.	Part No.
2	Cord Assy	CDE2764	CDE2764	CDE2764	CDE2763	CDE2880
6	Grille Unit	CXA3436	CXA3437	CXA3437	CXA3438	CXA3528
23	Knob	CAA1223	CAA1223	CAA1223	CAA1229	CAA1223
26	Door Unit	CXA3615	CXA3615	CXA3615	CXA3616	CXA3618
34	Button(<>)	CAC2428	CAC2428	CAC2428	CAC2542	CAC2428
◉ 44	Tuner Amp Unit	CWM2206	CWM2207	CWM2295	CWM2209	CWM2210
45	Plug	(11P) (NSP)	(11P) (NSP)	(11P) (NSP)	(9P) (NSP)	(9P) (NSP)
46	Plug	(11P) (NSP)	(11P) (NSP)	(11P) (NSP)	(9P) (NSP)	(9P) (NSP)
47	Volume	CCS1156	CCS1156	CCS1156	CCS1157	CCS1157
◉ 58	Key Board Unit	CWM2212	CWM2212	CWM2214	CWM2213	CWM2213
60	Lamp	CEL1013	CEL1013	CEL-147	CEL1025	CEL1025
64	Bush	·····	·····	CNV-724	·····	·····
65	Lamp	·····	·····	CEL-147	·····	·····
74	Cord Assy	CDE2766	CDE2766	CDE2766	CDE2767	CDE2767
76	Chassis Unit	(NSP)	(NSP)	(NSP)	(NSP)	(NSP)
79	Button(<<)	CAC2427	CAC2427	CAC2427	CAC2541	CAC2427
86	Holder	(NSP)	·····	·····	·····	·····
87	Connector	(NSP)	·····	·····	·····	·····
88	Insulator	(NSP)	·····	·····	·····	·····
96	Plug	(NSP)	·····	·····	·····	·····
◉ 99	FM/AM Tuner Unit	CWE1166	CWM1167	CWE1167	CWE1169	CWE1168
112	Button(>>)	CAC2426	CAC2426	CAC2426	CAC2543	CAC2426
114	Cap	·····	·····	·····	CNW-829	CNW-829

19. PACKING METHOD

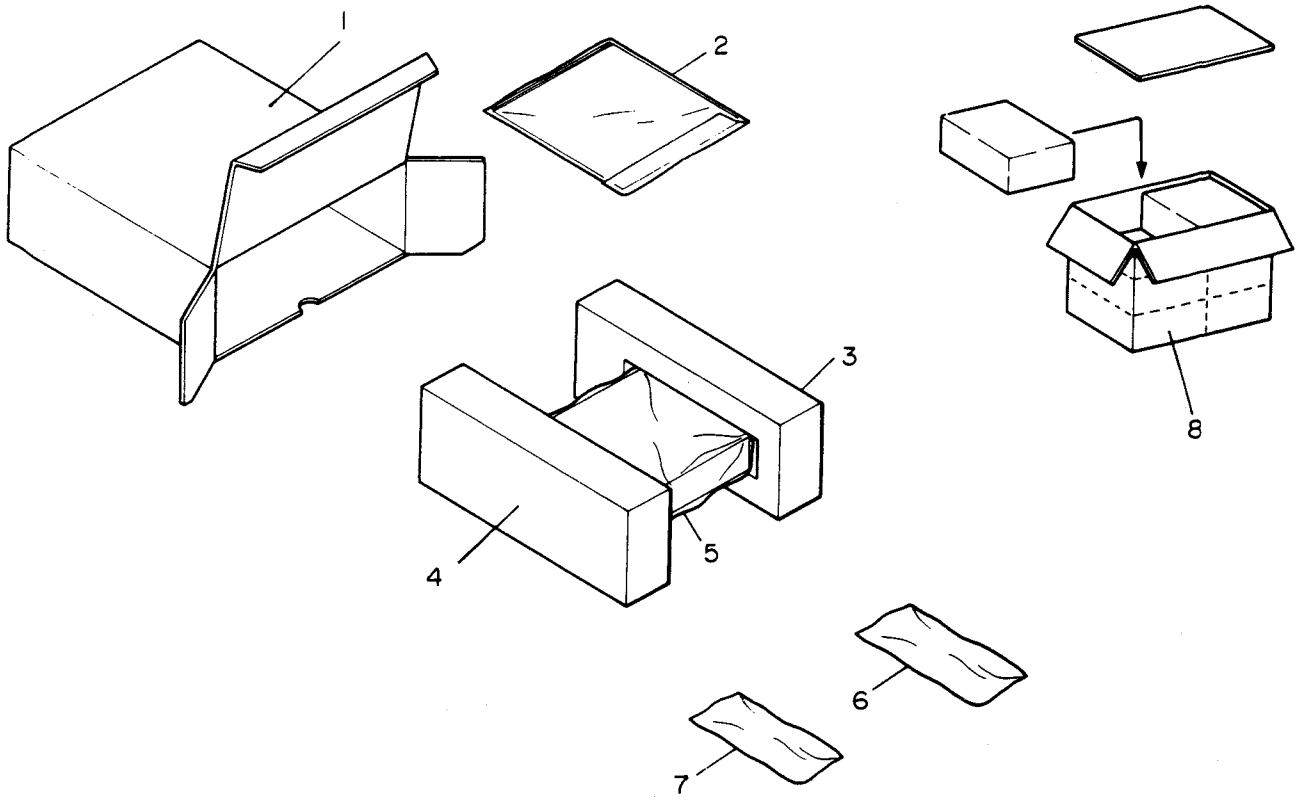


Fig. 25

• Part List

NSP:Non Spare Part

Mark No.	Description	KEH-M3000SDK /WG	KEH-M3000B /EW	KEH-M3000B /IT	KEH-M3000QR /UC	KEH-M3002QR /ES
		Part No.	Part No.	Part No.	Part No.	Part No.
1	Carton	CHG1795	CHG1793	CHG1794	CHG1796	CHG1797
* 2-1	Owner's Manual	CRD1375	CRD1374	CRD1376	CRD1378	CRD1379
* 2-2	Installation Manual	CRD1380	CRD1380	·····	·····	·····
2-3	Card	(NSP)	·····	·····	·····	·····
2-4	Card	(NSP)	(NSP)	(NSP)	·····	·····
2-5	Card	·····	·····	·····	(NSP)	·····
2-5	Passport	(NSP)	·····	·····	·····	·····
3	Styrofoam	CHP1258	CHP1258	CHP1258	CHP1258	CHP1258
4	Styrofoam	CHP1257	CHP1257	CHP1257	CHP1257	CHP1257
5	Cover	CEG-236	CEG-236	CEG-236	CEG-236	CEG-236
* 6	Accessory Assy	CEA1471	CEA1471	CEA1471	CEA1471	CEA1472
7	Cord Assy	·····	·····	·····	·····	CDE2880
8	Cotain Box	(NSP)	(NSP)	(NSP)	CHL1796	(NSP)

Except for KEH-M3002QR/ES

＊6 Accessory Assy CEA1471		
Mark No.	Description	Part No.
6-1	Screw(× 1)	CBA-102
6-2	Screw(× 1)	CBA1002
6-3	Strap	CNF-111
6-4	Bush	CNV1009
6-5	Nut (× 2)	NF50FMC

KEH-M3002QR/ES

＊6 Accessory Assy CEA1472					
Mark No.	Description	Part No.	Mark No.	Description	Part No.
6-1	Screw Assy		6-3	Strap	CNF-111
6-1-1	Screw(× 1)	BMZ40P060FMC	6-4	Bush	CNV1009
6-1-2	Screw(× 4)	BMZ50P080FMC			
6-1-3	Screw(× 1)	CBA-102			
6-1-4	Screw(× 1)	CBA1002			
6-1-5	Screw(× 2)	CBA1073			
6-1-6	Nut (× 2)	NF50FMC			
6-2	Accessory Assy	CEA1481			
6-2-1	Escutcheon				
6-2-2	Escutcheon				

＊ 2-1 Owner's Manual

Part No.	Model	Language
CRD1375	KEH-M3000SDK/WG	German, French
CRD1374	KEH-M3000B/EW	English, French, German, Spanish, Swedish, Norwegian, Dutch, Finnish
CRD1376	KEH-M3000B/IT	English, French, Italian
CRD1378	KEH-M3000QR/UC	English, French
CRD1379	KEH-M3002QR/ES	English, French, Spanish, Arabic

＊ 2-2 Installation Manual

Part No.	Model	Language
CRD1380	KEH-M3000B/EW KEH-M3000SDK/WG	English, French, German, Spanish, Swedish, Norwegian, Dutch, Finnish

20. ELECTRICAL PARTS LIST

NOTE:

- *Parts whose parts numbers are omitted are subject to being not supplied.*
- *The part numbers shown below indicate chip components.*

Chip Resistor

RS1/8S □□□J, RS1/10S □□□J

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

Unit Number :

Unit Name : FM/AM Tuner Unit (KEH-M3000SDK/WG)

* MISCELLANEOUS

Mark	Circuit Symbol & No.	Part Name	Part No.
	IC 51		PA4012
	IC 201		PA4010
	Q 1	Chip Transistor	2SB709
	Q 2	Chip Transistor	DTC124EK
	Q 51	Chip Transistor	DTA114TK
	Q 101		2SD1819
	Q 201		2SK435
	Q 202		2SC2412K
	Q 203 205	Chip Transistor	DTC124EK
	D 201 204	Chip Diode	MA157-MR
	D 205	Variable Capacitance Diode	SVC203-AB
	L 1 51	Inductor	CTF1104
	L 2	Inductor	CTF1086
	L 101	Inductor	CTF1126
	L 201	Inductor	CTF1084
	L 203	Ferri-Inductor	LAU220K
	L 204	Ferri-Inductor	LAU470K
	L 205	Ferri-Inductor	LAU4R7K
	L 206	Ferri-Inductor	CTF-157
	T 51	Coil	CTE1021
	T 52	Coil	CTE1022
	T 201	Coil	CTB1020
	T 202	Coil	CTB1004
	T 203	Coil	CTB1040
	T 204	Coil	CTE1037
	T 205	Coil	CTE1038
	T 206	Coil	CTE1039
	CG 1		DSP-201M
	TH 51 102	Thermister	DTN-T204D154K
	CF 51 52	Ceramic Filter	CTF-182
	CF 201	Ceramic Filter	CTF1041
	CF 202	Filter	CTF1085
	X 151	Ceramic Resonator	CSS1055
	X 201	Crystal Resonator	CSS1014
	VR 1	10kΩ (B)	VRTB4VS103
	VR 51 101 102	33kΩ (B)	VRTB4VS333
		FM Front End	CWB1035

RESISTORS

Mark	Circuit Symbol & No.	Part Name	Part No.
	R 2 7		RS1/10S223J
	R 3		RS1/10S124J
	R 4		RS1/10S682J
	R 5 13 63		RS1/10S0R0J
	R 6 59 101		RS1/10S331J
	R 10		RS1/10S560J
	R 54		RS1/10S472J
	R 56 58 104		RS1/10S393J
	R 57		RS1/10S562J
	R 60		RS1/10S473J
	R 61 105		RS1/10S332J
	R 64		RS1/10S222J
	R 102		RS1/10S822J
	R 106		RS1/10S333J
	R 107		RS1/10S102J
	R 108		RS1/10S104J
	R 111		RS1/10S123J
	R 112		RS1/10S683J
	R 151 152 153		RS1/10S222J
	R 201		RS1/10S220J
	R 202		RS1/10S681J
	R 203 206 214		RS1/10S222J
	R 204 213		RS1/10S473J
	R 205 209		RS1/10S470J
	R 207		RS1/10S822J
	R 208 211 212		RS1/10S103J
	R 210		RS1/10S682J
	R 215		RS1/10S153J

CAPACITORS

Mark	Circuit Symbol & No.	Part Name	Part No.
	C 1		CKSQYB102K50
	C 2 3 104		CKSQYB103K50
	C 4 59		CKSQYF413Z25
	C 51		CKSQYF413Z25
	C 52 53		CKSQYB223K25
	C 54		CCSQSL101J50
	C 55		CKSQYB102K50
	C 56		CKSQYF104Z25
	C 57		CEAR47M1 0LS2
	C 58		CCSQCH0[0D50

Mark	Circuit Symbol & No.	Part Name	Part No.
	C 60		CEALNP100M6R3
	C 101		CKSQYB822K50
	C 102		CKSQYB682K50
	C 103		CKSQYB392K50
	C 105		CEA2R2M50LL
	C 106		CEA220M6R3LL
	C 107 108		CKSQYB222K50
	C 110		CEA010M50LL
	C 111		CEA100M16LL
	C 112		CEA0R1M50LL
	C 151 152		CKSQYB273K25
	C 153		CSZAR47M35L
	C 154 155 156		CEA3R3M50LL
	C 157		CEA101M10LS
	C 201 223 228		CKSQYB103K25
	C 202 212		CKSQYB332K50
	C 203 215 216 219 226		CKSQYF473Z25
	C 204 208 210		CKSQYB223K25
	C 205		CCSQCH220J50
	C 206 207		CCSQCH820J50
	C 211		CEA2R2M50LL
	C 213		CCSQCH390J50
	C 218		CEA2R2M35NPLL
	C 220		CCSQCH430J50
	C 221		CCSQCH100D50
	C 222		CSZA010K35L
	C 224		CEA470M16LL
	C 225		CKSQYB333K25
	C 227		CEA4R7M35LS
	C 229		CEA470M16LS
	C 230		CEA220M16LL

Tuner Amp Unit
Consists of
• Mother P.C.Board
• Pre Amp P.C.Board
• Volume P.C.Board
• SDK P.C.Board
• Lamp P.C.Board

Unit Number :
Unit Name : Tuner Amp Unit(KEH-M3000SDK/WG)

MISCELLANEOUS

Mark	Circuit Symbol & No.	Part Name	Part No.
	IC 251		TA8162SN
	IC 451 601 702		TA75558S
	IC 501		PD4235
	IC 502		TC74HC125AP
	IC 551		TA8215H
	IC 701		KHA142
	IC 801		TA8214K
	Q 451 452 701 702		2SD1468S
	Q 501		2SC2498
	Q 502 506 751 752 803		2SC2458

Mark	Circuit Symbol & No.	Part Name	Part No.
	Q 503 507 656 806 814 815		DTC124ES
	Q 504		2SC3113
	Q 505		2SK330
	Q 508 509 754 756 759		2SA1048
	Q 510		DTA124ES
	Q 651 660		DTA124EL
	Q 551 652 653 655		DTC124EL
	Q 654		2SC4038LN
	Q 657		2SB772
	Q 658 807 808 813 817 818		DTC114TS
	Q 659		DTC124EL
	Q 816 819		DTA124ES
	Q 703 704 705 706		2SC2458
	Q 751 752 753		2SA1561
	Q 757 758		DTC314TL
	Q 760 853		DTA114EL
	Q 804 854		DTC114TL
	Q 805 811		2SB1243
	Q 809 812		DTB123ES
	Q 820		DTC114TS
	Q 851 852		2SC3327
	D 251 501 502 504 505 506 507 508 509 510		1SS133
	D 503		HZS3R0EB2
	D 511 512 601 602 603 604 605 606 651 652		1SS133
	D 518		1S1555
	D 653 655 656 752 807 810		1SS133
	D 654		HZS8R2JB2
	D 751		RD3R6ESB1
	D 801		ERC04-02F
	D 802 808 809		ERA15-02VH
	D 803		HZS7R5JB2
	D 804		HZS5R6JB2
	D 805		MA700
	D 806 856		HZS6R8JB2
	L 801 802 803		CCG1003
	L 804	Ferri-Inductor	CTF1042
	L 805	Ferri-Inductor	LAU2R2M
	L 806	Ferri-Inductor	LAU330K
	IB 503		CWW1185
	IB 504		CWW1128
	X 501	Crystal Resonator	CSS1011
	X 701	Ceramic Resonator	CSS1019
	S 451	Switch	CSG-207
	IL 805	Lamp 14V 40mA	CEL1013
	VR 451/S 452	Volume/Switch 20kΩ (B) × 2, 50kΩ (BH) × 4, 50kΩ (G) × 1	CCS1156
	VR 452 453	Volume 50kΩ (B) × 2	CCS1158
		LCD	CAW1089

RESISTORS

Mark	Circuit Symbol & No.	Part Name	Part No.
	R 251 252 516		RS1/10S104J
	R 253 254		RS1/10S151J
	R 255 256 761 762		RS1/10S183J
	R 257 258 460		RS1/10S133J
	R 259 260 526		RS1/10S334J

Mark	Circuit Symbol & No.	Part Name	Part No.
	R 261 262		RS1/10S183J
	R 263 264		RS1/10S122J
	R 265 266		RS1/8S222J
	R 268 519 713 715 720		RD1/4PS472JL
	R 269 517 660 777 801		RS1/10S0R0J
	R 451 452 455 456		RD1/4PS153JL
	R 453 454 457 458		RD1/4PS332JL
	R 459 522		RS1/10S103J
	R 461 462		RD1/4PS182JL
	R 463 464 512 702 714 729 730 803		RD1/4PS222JL
	R 465 466		RS1/8S102J
	R 501		RS1/10S331J
	R 502		RS1/10S182J
	R 503		RS1/10S821J
	R 504 505		RS1/10S101J
	R 506 507		RS1/10S222J
	R 508 521 765 766 767 768		RS1/10S102J
	R 509 545 547		RS1/10S472J
	R 510 534 601 602 603 604		RS1/10S473J
	R 511		RS1/10S563J
	R 513		RD1/4PM221J
	R 514 657 769 770 816 854		RS1/10S223J
	R 515 651 653		RD1/4PS103JL
	R 518 558 652 658 659 709 812 815 821 822		RD1/4PS102JL
	R 520		RS1/8S152J
	R 523 524 711		RS1/10S222J
	R 525		RD1/4PS823JL
	R 527		RD1/4PS682JL
	R 528 544 546 701 707 721		RD1/4PS473JL
	R 529		RD1/4PS823JL
	R 530		RS1/8S682J
	R 531		RS1/10S682J
	R 532		RD1/4PS682JL
	R 535 536 542		RS1/10S101J
	R 537 538 539 540 543		RD1/4PS101JL
	R 541 572		RD1/4PS473JL
	R 549 550		RD1/4PM103J
	R 551 552 717 727		RD1/4PS271JL
	R 553 554 555 556		RD1/4PS4R7JL
	R 557 703 813		RD1/4PS223JL
	R 559 560		RD1/4PM102J
	R 561		RD1/4PS473JL
	R 562		RS1/8S681J
	R 563 564 565 566		RS1/10S681J
	R 569 755 756 763 764 804		RS1/10S473J
	R 570		RD1/4PM473J
	R 571 809		RS1/8S473J
	R 573 574		RS1/10S473J
	R 605 606 753 754		RS1/10S124J
	R 654 716		RD1/4PS122JL
	R 655		RS1/10S222J
	R 656		RD1/4PS271JL
	R 704		RD1/4PS333JL
	R 705 706 710		RD1/4PS104JL
	R 708		RD1/4PS563JL
	R 712		RD1/4PS273JL
	R 718		RD1/4PS684JL
	R 725 726		RD1/4PS822JL
	R 728		RD1/4PS1R5JL
	R 751		RS1/10S221J
	R 752		RS1/8S221J
	R 757 758		RS1/10S152J
	R 759 760 771		RS1/10S561J
	R 773		RS1/10S124J
	R 774		RD1/4PS470JL
	R 802		RS1/8S103J
	R 805 807 808 811 851 852		RS1/10S103J
	R 806 853		RS1/10S102J
	R 810		RD1/4PS101JL
	R 814		RD1/4PS103JL
	R 817		RD1/4PS222JL
	R 818		RS1/10S102J
	R 855 856		RS1/10S123J

CAPACITORS

Mark	Circuit Symbol & No.	Part Name	Part No.
	C 251 252 501		CKSQYB681K50
	C 253 254		CEA470M16LS
	C 255 256 257 502 507 509 511 702		CKSQYB103K50
	C 259		CEA100M16LS2
	C 260 464		CEA101M16LS
	C 305 306 601 602		CEA2R2M35NPLL
	C 451 452 603 604		CCSQCH330J50
	C 453		CKSYB332K50
	C 454		CKSQYB332K50
	C 455 456		CKSQYB333K25
	C 457 458		CEA220M16L2
	C 459 460		CKSQYB272K50
	C 461 462 703		CEAR33M50LSS
	C 463 806		CEA100M16L2
	C 503		CCSQCH101K50
	C 504		CCSCH101J50
	C 505 506 517 520 521		CKPYY103M16L
	C 510		CCG1008
	C 512	4.7μF/16V	CCH1005
	C 513 514		CCSQCH100D50
	C 516 708		CEAR47M50LSS
	C 518		CKSYB473K50
	C 519	470μF/6.3V	CCH1013
	C 551 552		CCHAQ4R7M50
	C 553 554 713 756 761		CKSQYB102K50
	C 555 556		CCHAQ470M25
	C 557 558 559 560		CCEA224J63
	C 561		CCHAQ101M10
	C 562		CCHAQ220M50
	C 651 706 707 751 752 757 758 851 852		CEA4R7M35LS
	C 652 760 808		CEA100M16LS2
	C 701 719 762 813 853		CEA220M16LS
	C 704		CQMA683J50LL
	C 705 717 810 812		CEA470M16LS
	C 709		CEA101M10LS

Mark	Circuit Symbol & No.	Part Name	Part No.
	C 710 711		CKSQYB471K50
	C 712 715		CEA010M50LS2
	C 714 716		CKSQYB223K25
	C 718 803 807 809		CKSQYB333K25
	C 753 754		CEALNP100M16
	C 755		CKSYB102K50
	C 759		CEA221M10L2
	C 801		CEA472M16L2
	C 802 804		CEA470M16L2
	C 805		CEA331M10L2
	C 811		CEA4R7M35LS
	C 814		CEA2R2M50LS2
	C 816		CKSQYB102K50
	C 817		CKSQYB333K25

Tuner Amp Unit

Consists of
- Mother P.C.Board
- Pre Amp P.C.Board
- Volume P.C.Board
- Lamp P.C.Board

Unit Number :
Unit Name : Tuner Amp Unit(KEH-M3000B/EW)

MISCELLANEOUS

Mark	Circuit Symbol & No.	Part Name	Part No.
	IC 251		TA8162SN
	IC 451 601		TA75558S
	IC 501		PD4235
	IC 502		TC74HC125AP
	IC 551		TA8215H
	IC 801		TA8214K
	Q 451 452		2SD1468S
	Q 501		2SC2498
	Q 502 506 802 803		2SC2458
	Q 503 507 656 806 814 815		DTC124ES
	Q 504		2SC3113
	Q 505		2SK330
	Q 508 509 754 756 759		2SA1048
	Q 510		DTA124ES
	Q 651 660		DTA124EL
	Q 551 652 653 655		DTC124EL
	Q 654 751 752 802		2SC4038LN
	Q 657		2SB772
	Q 658 807 808 813 817		DTC114TS
	Q 659		DTC124EL
	Q 816 819		DTA124ES
	Q 753 755		2SA1561
	Q 757 758		DTC314TL
	Q 760 853		DTA114EL
	Q 804 854		DTC114TL
	Q 805 811		2SB1243
	Q 809 812		DTB123ES
	Q 818 820		DTC114TS
	Q 851 852		2SC3327
	D 251 501 502 504 505 506 507 508 509 510		1SS133
	D 503		HZS3R0EB2
	D 511 514 601 602 603 604 605 606 651 652		1SS133
	D 518		1S1555
	D 653 655 656 752 807 810		1SS133
	D 654		HZS8R2JB2
	D 751		RD3R6ESB1
	D 801		ERC04-02F
	D 802 808 809		ERA15-02
	D 803		HZS7R5JB2
	D 804		HZS5R6JB2
	D 805		MA700
	D 806 856		HZS6R8JB2
	L 801 802 803		CCG1003
	L 804	Ferri-Inductor	CTF1042
	L 805	Ferri-Inductor	LAU2R2M
	L 806	Ferri-Inductor	LAU330K
	IB 503		CWW1185
	IB 504		CWW1128
	X 501	Crystal Resonator	CSS1011
	S 451	Switch	CSG-207
	IL 805	Lamp	CEL1013
	VR 451/S 452	Volume/Switch 20kΩ (B) × 2, 50kΩ (BH) × 4, 50kΩ (G) × 1	CCS1156
	VR 452 453	Volume 50kΩ (B) × 2	CCS1158
		LCD	CAW1089

RESISTORS

Mark	Circuit Symbol & No.	Part Name	Part No.
	R 251 252 516		RS1/10S104J
	R 253 254		RS1/10S151J
	R 255 256 761 762		RS1/10S183J
	R 257 258 460		RS1/10S133J
	R 259 260 526		RS1/10S334J
	R 261 262		RS1/10S183J
	R 263 264		RS1/10S122J
	R 265 266		RS1/8S222J
	R 268 519		RD1/4PS472JL
	R 451 452 455 456		RD1/4PS153JL
	R 453 454 457 458		RD1/4PS332JL
	R 459 522		RS1/10S103J
	R 461 462 817		RD1/4PS222JL
	R 463 464 512 803		RD1/4PS222JL
	R 465 466		RS1/8S102J
	R 501		RS1/10S331J
	R 502		RS1/10S182J
	R 503		RS1/10S821J
	R 504 505		RS1/10S101J
	R 506 507		RS1/10S222JL
	R 508 521 767 768		RS1/10S102J
	R 509 545 547		RS1/10S472J
	R 510 534 601 602 603 604		RS1/10S473J
	R 511		RS1/10S563J
	R 513		RD1/4PM221J
	R 514 657 769 770 816 854		RS1/10S223J
	R 515 651 653		RD1/4PS103JL
	R 517 660 777 801		RS1/10S0R0J
	R 518 558 652 658 659 812 815 821 822		RD1/4PS102JL
	R 520		RS1/8S152J

Mark	Circuit Symbol & No.	Part Name	Part No.
R	523 524		RS1/10S222J
R	525		RD1/4PS823JL
R	527		RD1/4PS682JL
R	528 544 546		RD1/4PS473JL
R	529		RD1/4PS823JL
R	530		RS1/8S682J
R	531		RS1/10S682J
R	532		RD1/4PS682JL
R	535 536 542		RS1/10S101J
R	537 538 539 540 543		RD1/4PS101JL
R	541		RD1/4PS473JL
R	550		RD1/4PM103J
R	551 552		RD1/4PS391JL
R	553 554 555 556		RD1/4PS4R7JL
R	557 813		RD1/4PS223JL
R	559 560		RD1/4PM102J
R	562		RS1/8S681J
R	563 564 565 566		RS1/10S681J
R	569 755 756 763 764 804		RS1/10S473J
R	570		RD1/4PM473J
R	571 809		RS1/8S473J
R	573 574		RS1/10S473J
R	605 606		RS1/10S104J
R	654		RD1/4PS122JL
R	655		RS1/10S222J
R	656		RD1/4PS271JL
R	751		RS1/10S221J
R	752		RS1/8S221J
R	753 754		RS1/10S124J
R	757 758		RS1/10S182J
R	759 760 771		RS1/10S561J
R	765 766		RS1/10S152J
R	773		RS1/10S124J
R	774		RD1/4PS470JL
R	802		RS1/8S103J
R	805 807 808 811 851 852		RS1/10S103J
R	806 853		RS1/10S102J
R	810		RD1/4PS101JL
R	814		RD1/4PS103JL
R	818		RS1/10S102J
R	855 856		RS1/10S123J

Mark	Circuit Symbol & No.	Part Name	Part No.
C	504		CCSCH101J50
C	505 506 517 520 521		CKPYY103M16L
C	510		CCG1008
C	512	4.7μF/16V	CCH1005
C	513 514		CCSQCH100D50
C	516		CEAR47M50LS2
C	518		CKSYB473K50
C	519	470μF/6.3V	CCH1013
C	551 552		CEHAQ4R7M50
C	553 554 756 761		CKSQYB102K50
C	555 556		CEHAQ470M25
C	557 559 560		CQEA224J63
C	558		CQEA224J63
C	561		CEHAQ101M10
C	562		CEHAQ220M50
C	651 751 752 757 758 851 852		CEA4R7M35LS
C	652 760 808		CEA100M16LS2
C	753 754		CEALNP100M16
C	755		CKSYB102K50
C	759		CEA221M10L2
C	762 813 853		CEA220M16LS
C	801		CEA472M16L2
C	802 804		CEA470M16L2
C	803 807 809		CKSQYB333K25
C	805		CEA331M10L2
C	810 812		CEA470M16LS
C	811		CEA4R7M35LS
C	814		CEA2R2M50LS2
C	816		CKSQYB102K50
C	817		CKSQYB333K25

Tuner Amp Unit

Consists of
- Mother P.C.Board
- Pre Amp P.C.Board
- Volume P.C.Board
- Lamp P.C.Board

Unit Number :

Unit Name : Tuner Amp Unit(KEH-M3000QR/UC)

CAPACITORS

Mark	Circuit Symbol & No.	Part Name	Part No.
C	251 252 501		CKSQYB681K50
C	253 254		CEA470M16LS
C	255 256 257 502 507 509 511		CKSQYB103K50
C	259		CEA100M16LS2
C	260 464		CEA101M16LS
C	305 306 601 602		CEA2R2M35NPLL
C	451 452 603 604		CCSQCH330J50
C	453		CKSYB332K50
C	454		CKSQYB332K50
C	455 456		CKSQYB333K25
C	457 458		CEA220M16L2
C	459 460		CKSQYB272K50
C	461 462		CEAR33M50LS2
C	463 806		CEA100M16L2
C	503		CCSQCH101K50

MISCELLANEOUS

Mark	Circuit Symbol & No.	Part Name	Part No.
IC	251		PA8162SN
IC	451 601		PA7555BS
IC	501		PD4235
IC	502		PC74HC125AP
IC	551		PA8215H
IC	801		PA8214K
Q	451 452		2SD1468S
Q	501		2SC2498
Q	502 506 803		2SC2458
Q	503 656 659 806 814 815		DTC124ES
Q	504		2SC3113
Q	505		2SK330
Q	508 509 754		2SA1048
Q	510		DTA124ES
Q	651 660		DTA124EL

Mark	Circuit Symbol & No.	Part Name	Part No.
Q	652 653 655		DTC124EL
Q	654 751 752 802		2SC4038LN
Q	657		2SB772
Q	658 807 808 813 817		DTC114TS
Q	551 659		DTC124EL
Q	816 819		DTA124ES
Q	753		2SA1561
Q	757 758		DTC314TL
Q	760 853		DTA114EL
Q	804 854		DTC114TL
Q	805 811		2SB1243
Q	809 812		DTB123ES
Q	818 820		DTC114TS
Q	851 852		2SC3327
D	251 501 502 504 505 506 507 508 509 510		1SS133
D	503		HZS3R0EB2
D	511 601 602 603 604 605 606 651 652		1SS133
D	518		1S1555
D	653 655 656 752 807 810		1SS133
D	654		HZS8R2JB2
D	801		ERC04-02F
D	802 808 809		ERA15-02
D	803		HZS7R5JB2
D	804		HZS5R6JB2
D	805		MA700
D	806 856		HZS6R8JB2
L	801 802 803		CCG1003
L	804	Ferri-Inductor	CTF1042
L	805	Ferri-Inductor	LAU2R2M
L	806	Ferri-Inductor	LAU330K
IB	503		CWW1185
IB	504		CWW1128
X	501	Crystal Resonat	CSS1011
S	451	Switch	CSG-207
IL	805	Lamp 14V 40mA	CEL1025
VR	451/S 452	Volume/Switch 200Ω (P) × 2, 50kΩ (W) × 1, 20kΩ (B) × 2	CCS1157
VR	452 453	Volume 50kΩ (B) × 2	CCS1158
		LCD	CAW1089

RESISTORS

Mark	Circuit Symbol & No.	Part Name	Part No.
R	251 252 516		RS1/10S104J
R	253 254		RS1/10S151J
R	255 256		RS1/10S183J
R	257 258 460		RS1/10S133J
R	259 260 526		RS1/10S334J
R	261 262		RS1/10S183J
R	263 264		RS1/10S122J
R	265 266		RS1/8S222J
R	268 519		RD1/4PS472JL
R	451 452 455 456		RD1/4PS153JL
R	453 454 457 458		RD1/4PS332JL
R	459 522		RS1/10S103J
R	461 462 817		RD1/4PS222JL
R	463 464 512 803		RD1/4PS222JL
R	465 466		RS1/8S102J
R	501		RS1/10S331J
R	502		RS1/10S182J
R	503		RS1/10S821J
R	504 505		RS1/10S101J
R	506 507		RS1/10S222J
R	508 521		RS1/10S102J
R	509 545 547		RS1/10S472J
R	510 534 601 602 603 604		RS1/10S473J
R	511		RS1/10S563J
R	513		RD1/4PM221J
R	514 657 769 770 816 854		RS1/10S223J
R	515 651 653		RD1/4PS103JL
R	517 660 775 776 777 801		RS1/10S0R0J
R	518 558 652 658 659 812 815 821 822		RD1/4PS102JL
R	520		RS1/8S152J
R	523 524		RS1/10S222J
R	525		RD1/4PS823JL
R	527		RD1/4PS682JL
R	528 544 546		RD1/4PS473JL
R	529		RD1/4PS823JL
R	530		RS1/8S682J
R	531		RS1/10S682J
R	532		RD1/4PS682JL
R	535 536 542		RS1/10S101J
R	537 538 539 540 543		RD1/4PS101JL
R	541		RD1/4PS473JL
R	550		RD1/4PM103J
R	551 552		RD1/4PS391JL
R	553 554 555 556		RD1/4PS4R7JL
R	557 813		RD1/4PS223JL
R	559 560		RD1/4PM102J
R	562		RS1/8S681J
R	563 564 565 566		RS1/10S681J
R	567		RS1/8S473J
R	568		RD1/4PS473JL
R	569		RS1/10S473J
R	570		RD1/4PM473J
R	571		RS1/8S473J
R	573 574		RS1/10S473J
R	605 606		RS1/10S104J
R	654		RD1/4PS122JL
R	655		RS1/10S222J
R	656		RD1/4PS271JL
R	751		RS1/10S221J
R	752		RS1/10S151J
R	753 754 763 764 804		RS1/10S473J
R	755 756		RS1/10S203J
R	757 758		RS1/10S182J
R	759 760		RS1/10S471J
R	761 762		RS1/10S163J
R	765 766		RS1/10S271J
R	767 768		RS1/10S102J
R	773		RS1/10S124J
R	774		RD1/4PS470JL
R	802		RS1/8S103J

Mark	Circuit Symbol & No.	Part Name	Part No.
R	805 807 808 811 851 852		RS1/10S103J
R	806 853		RS1/10S102J
R	809		RS1/8S473J
R	810		RD1/4PS101JL
R	818		RS1/10S102J
R	814		RD1/4PS103JL
R	855 856		RS1/10S123J

CAPACITORS

Mark	Circuit Symbol & No.	Part Name	Part No.
C	251 252 501		CKSQYB681K50
C	253 254		CEA470M16LS
C	255 256 257 502 507 509 511		CKSQYB103K50
C	259		CEA100M16LS2
C	260 464		CEA101M16LS
C	305 306 601 602		CEA2R2M35NPLL
C	451 452 603 604		CCSQCH330J50
C	453		CKSYB332K50
C	454		CKSQYB332K50
C	455 456		CKSQYB333K25
C	457 458		CEA220M16L2
C	459 460		CKSQYB272K50
C	461 462		CEAR33M50LS2
C	463 806		CEA100M16L2
C	503		CCSQCH101K50
C	504		CCSCH101J50
C	505 506 517 520 521		CKPYY103M16L
C	510		CCG1008
C	512	4.7μF/16V	CCH1005
C	513 514		CCSQCH100D50
C	518		CKSYB473K50
C	519	470μF/6.3V	CCH1013
C	551 552		CEHAQ4R7M50
C	553 554 756		CKSQYB102K50
C	555 556		CEHAQ470M25
C	557 559 560		CQEA224J63
C	558		CQEA224J63
C	561		CEHAQ101M10
C	562		CEHAQ220M50
C	651 851 852		CEA4R7M35LS
C	652 757 758 808		CEA100M16LS2
C	751 752		CEA100M35LS
C	753 754		CEALNP100M16
C	755		CKSYB102K50
C	759		CEA221M10L2
C	762 813 853		CEA220M16LS
C	801		CEA472M16L2
C	802 804		CEA470M16L2
C	803 807 809		CKSQYF333K25
C	805		CEA331M10L2
C	810 812		CEA470M16LS
C	811		CEA4R7M35LS
C	814		CEA2R2M50LS2
C	816		CKSQYB102K50

Unit Number :
Unit Name : Key Board Unit(KEH-M3000SDK/WG)

MISCELLANEOUS

Mark	Circuit Symbol & No.	Part Name	Part No.
S	901 902 903 904 905 906 907 908 909 910		CSG-255
S	911 912 914 915	Switch	CSG-255
IL	801 802 803 804	Lamp 14V 40mA	CEL1013

Unit Number :
Unit Name : Switch P.C.Board

Mark	Circuit Symbol & No.	Part Name	Part No.
D	1		F1SR35-100A
S	1 2	Switch(Mute & Motor)	ESN1001
S	3	Switch(Tape/Tuner)	HSK-126

Number :
Name : P.C.Board Unit

Mark	Circuit Symbol & No.	Part Name	Part No.
S	1	Switch(FWD/REV)	ESH1002

Miscellaneous Parts List

Mark	Circuit Symbol & No.	Part Name	Part No.
HD	1	Head	EPB1006
M	1	Motor Unit	EXA1033
SO	1	Solenoid	EXP1001
S	801	Switch	CSN-078
B	801	Battery	CEX1005

● Key Board Unit

	KEH-M3000SDK/WG KEH-M3000B/EW	KEH-M3002QR/ES KEH-M3000QR/UC	KEH-M3000B/IT
Circuit Symbol & No.	Part No.	Part No.	Part No.
IL 801 802 803 804	CEL1013	CEL1025	CEL-147

● Tuner Amp Unit

	KEH-M3000B/EW	KEH-M3000B/IT
Circuit Symbol & No.	Part No.	Part No.
IL 805	CEL1013	CEL-147
IL 806	·····	CEL-147

	KEH-M3000QR/UC	KEH-M3002QR/ES
Circuit Symbol & No.	Part No.	Part No.
D 515	·····	1SS133

● FM/AM Tuner Unit

	KEH-M3000SDK/WG	KEH-M3000B/IT KEH-M3000B/EW	KEH-M3000QR/UC	KEH-M3002QR/ES
Circuit Symbol & No.	Part No.	Part No.	Part No.	Part No.
Q 3	·····	·····	2SA1162	·····
Q 51	DTA114TK	·····	·····	·····
D 11 12	·····	·····	1SV128A-BB	·····
L 2	CTF1086	CTF1086	·····	·····
L 11 12	·····	·····	CTF1065	·····
L 201	CTF1084	CTF1084	CTF1026	CTF1026
VR 1	VRTB4VS103	VRTB4VS103	VRTB4VS104	VRTB4VS103
R 3	RS1/10S124J	RS1/10S124J	RS1/10S683J	RS1/10S124J
R 8	·····	·····	RS1/10S331J	·····
R 9	·····	·····	RS1/10S223J	·····
R 10	RS1/10S560J	RS1/10S560J	RS1/10S0R0J	RS1/10S560J
R 11	·····	·····	RS1/10S104J	·····
R 12	·····	·····	RS1/10S470J	·····
R 13	RS1/10S0R0J	RS1/10S0R0J	·····	RS1/10S0R0J
R 14	·····	·····	RS1/10S0R0J	RS1/10S0R0J
R 58	RS1/10S393J	RS1/10S393J	RS1/10S223J	RS1/10S393J
R 60	RS1/10S473J	·····	·····	·····
R 61	RS1/10S332J	RS1/10S332J	·····	·····
R 101	RS1/10S331J	RS1/10S331J	RS1/10S471J	RS1/10S471J
R 151 152	RS1/10S222J	RS1/10S222J	RS1/10S152J	RS1/10S152J
C 11-14	·····	·····	CCSQCH220J50	·····
C 15	·····	·····	CKSQYF223Z50	·····
C 57	CEAR47M50LS2	CEAR47M50LS2	CEAR68M50LS2	CEAR47M50LS2
C 101	CKSQYB822K50	CKSQYB822K50	CKSQYB392K50	CKSQYB392K50
C 151 152	CKSQYB273K25	CKSQYB273K25	CKSQYB563K25	CKSQYB563K25

PIONEER

Service Manual

ORDER NO.
CRT 1094

CASSETTE MECHANISM ASSEMBLY

CX-166

- This service manual is for cassette mechanism assembly used in car stereo components.
- Refer to the service manual for individual models for details on sections other than the cassette mechanism assembly.

	Model	Service Manual	Model	Service Manual
With music search	KE-3050/ES	CRT1088		
	KE-3080/EW			
	KE-3080SDK/WG			
	KE-3050QR/UC	CRT1089		

	Model	Service manual	Model	Service Manual
Without music search	KP-3120/EW, ES	CRT1085	KP-4440/UC, ES	CRT1092
	KP-3130/EW		KP-5011/US	
	KP-3120SDK/WG		KP-5550/UC, ES	
	KPH-4120/EW, ES	CRT1086		
	KPH-4130/EW			
	KPH-4120SDK/WG			
	KE-3020/ES	CRT1087		
	KE-3030/EW			
	KE-3030SDK/WG			
	KE-2222/UC, ES	CRT1090		
	KE-2515/US			
	KE-3011/US			
	KE-3232/UC, ES			

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4. CIRCUIT DIAGRAM & PATTERNS 13

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PIONEER ELECTRONIC (EUROPE) N.V. Keetberglaan 1, 2740 Beveren, Belgium TEL: 03/775·28·08
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: (03) 580-9911

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1. DISASSEMBLY

Note: Always use new washer and E-washer at the time of reassembling.

- **Dismounting the Cassette Holder (Fig. 1)**

(1) Make the claw straight.
(2) Remove the spring.
(3) The cassette holder is gripped at 2 points, shown by arrows. So, shift it toward the left and pull it out from above.

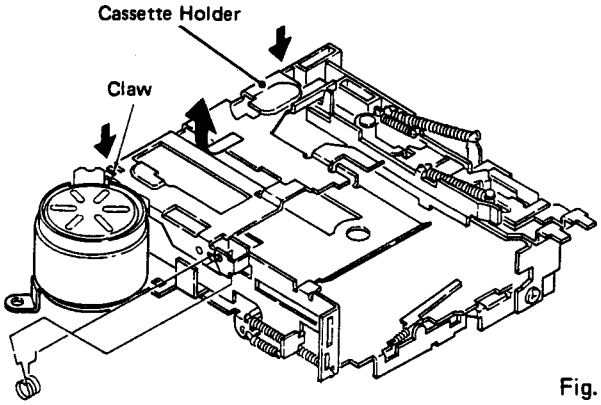


Fig. 1

- **Dismounting the Reel Unit (Fig. 2)**

(1) Take off the washer.
(2) Remove the reel unit.

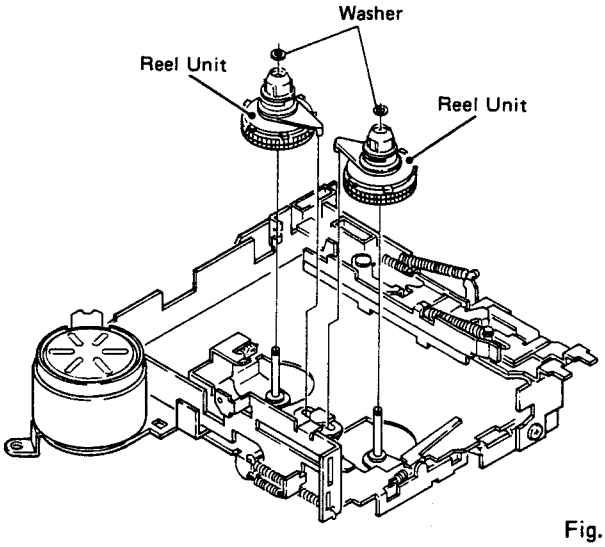


Fig. 2

- **Dismounting the Flywheels (Fig. 3)**

(1) Take off the E-washer. Retain washer properly to ensure it doesn't get lost.
(2) Remove the flywheels. Do not mistake the N and R flywheels (otherwise tape speed would change).

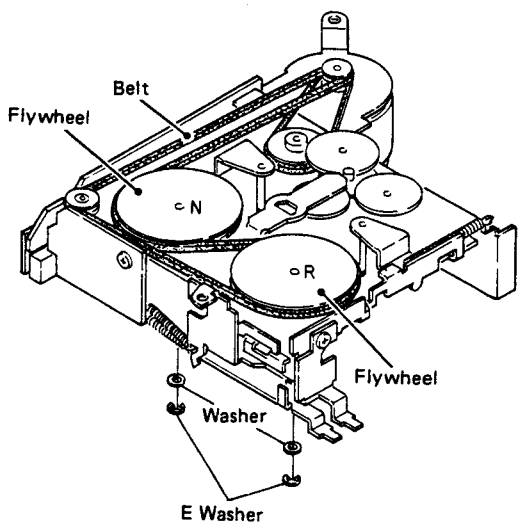


Fig. 3

• Dismounting the Head (Fig. 4, 5)

(1) Remove the P.C. board unit, after taking off its fastening screw.
Note: Take care not to change the setting of FWD/REV switch of P.C. board.

(2) Remove the 3 springs.
(3) Take off E-washer.
(4) Remove the lever unit (EJ).

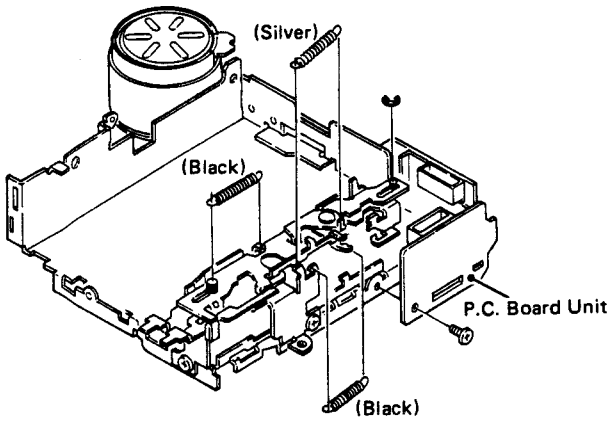


Fig. 4

(5) Take off the lever (FF). When reassembling, make sure that the spring comes in front of arm unit.
(6) Take off lever (REW).
(7) Remove the head after taking off its 2 retaining screws.
Note: The head can be dismounted, even without taking off the levers given in above steps (5) & (6).

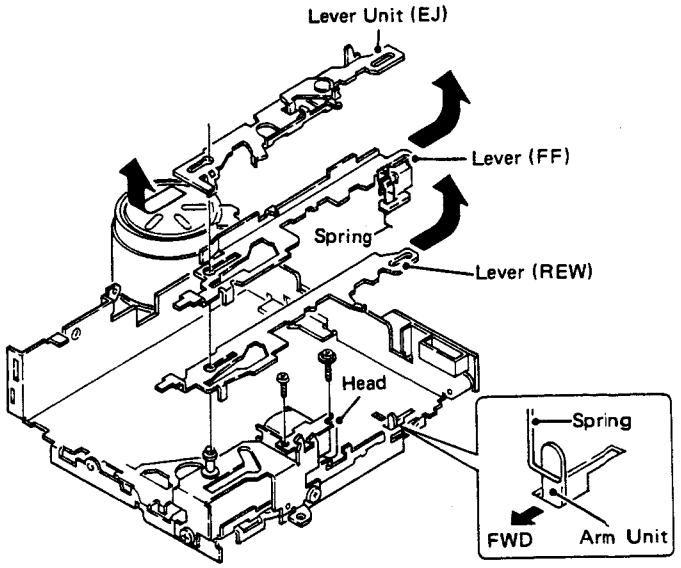


Fig. 5

• Dismounting the FWD Pinch Roller (Fig. 6)

(1) Remove E-washer & spring, and then take off the FWD pinch roller.

• Dismounting the REV Pinch Roller (Fig. 6)

(1) Remove the 2 retaining screws, and then take off the bracket unit, taking care not to hit against the protrusion.
(2) Take off E-washer & spring, and remove the REV pinch roller.

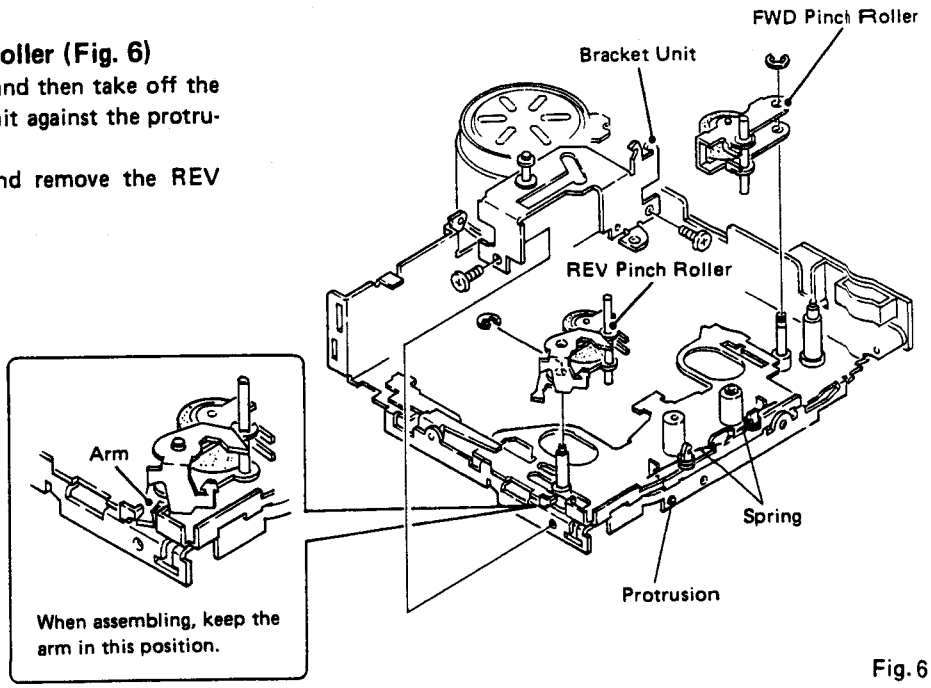


Fig. 6

2. MECHANISM DESCRIPTION

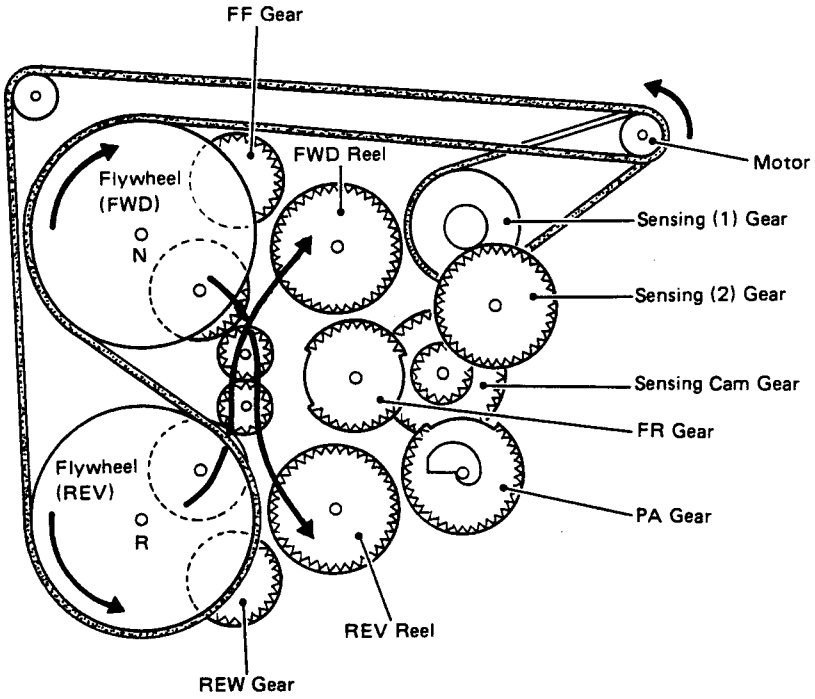


Fig. 7 Transmission of turning force at the time of PLAY (Flywheel →Reel)

• Loading & Playing the Cassette Tape

(1) When a cassette tape is inserted, a lever pushes against an arm, which then turns ON the motor and tape/tuner (tape side) switches, in this given order.

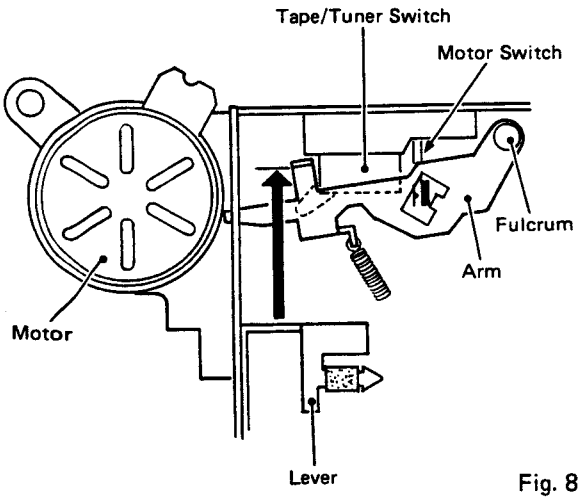


Fig. 8

(2) When a cassette tape is set, the arm of Fig. 9 (collision preventing) gets depressed, putting the head base in forward movable state.

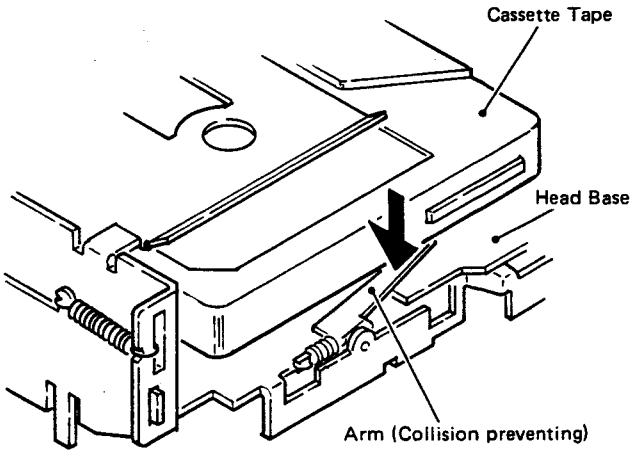


Fig. 9

(3) As motor switch turns ON, the motor starts running, transmitting its rotations toward the arrow direction shown in the Fig. 10. As a result, flywheel (FWD) runs forward and flywheel (REV) runs backward.

(4) REW gear then transmits the rotations of flywheel (REV) to REV reel, putting the mechanism in REW state and eliminating tape slackening (ATSC). At this time, the FWD reel is locked by the ratchet mentioned in step (14).

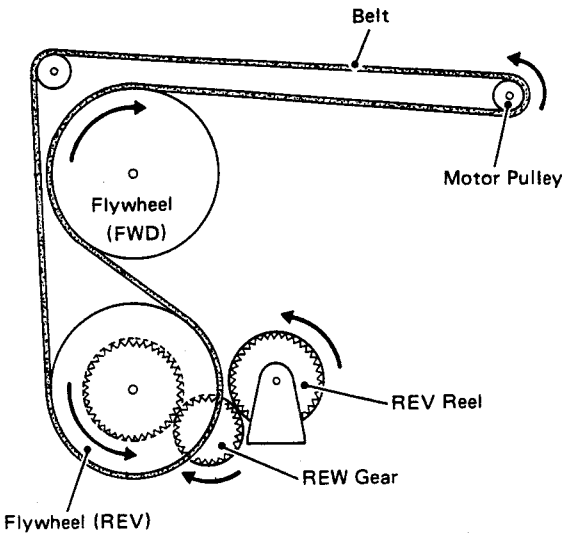


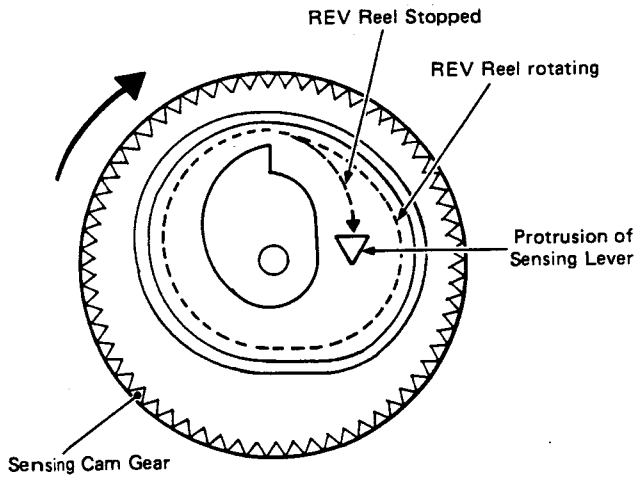
Fig. 10

(5) In Fig. 11, the reel arms of FWD & REV reels are engaged on the sensing arm. A slight friction causes the reel arms to get locked onto the reels. While REV reel is rotating, the reel arms and sensing lever keep shifting laterally along the arrow direction ① of Fig. 11. Right side movement of the reel arm is caused by the rotation of REV reel; while the left side movement is caused by protrusion of the sensing lever through the inner groove of sensing cam gear.

(6) REV reel stops as soon as tape slackening is eliminated (the gear of reel is driven by REW gear).

(7) As soon as the reel stops, the operation of above step (5) sends the reel arm toward the left.
Consequently, the protrusion of sensing lever moves along the orbit of dotted line, causing the sensing lever to get pushed by cam and move along arrow ②.

(8) Sensing lever turns the ATSC lock arm along the direction of arrow ③ .



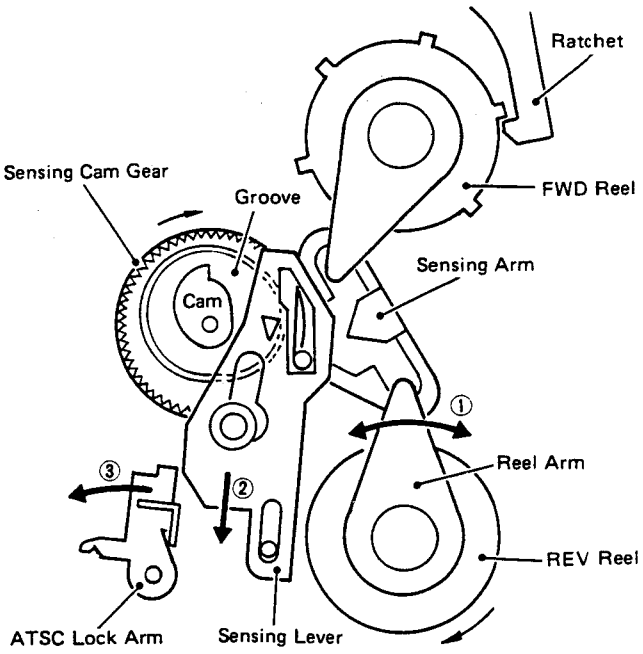


Fig. 11

(9) In ejected state, PA gear remains locked by ATSC lock arm, as shown in Fig. 13. The force along arrow ③ caused by the operation of above step (8), releases the lock if PA gear, whereupon the PA gear is made to rotate slightly along arrow ④ by the gear driving spring. As a result, the PA gear engages with sensing cam gear, and proceeds to turn through 1 more rotation. The cam of PA gear then causes the HD drawing arm and key-off lock arm to move along arrow ⑤. The HD drawing arm pushes against a lever, and a spring attached to the lever causes the head base to shift along arrow ⑥

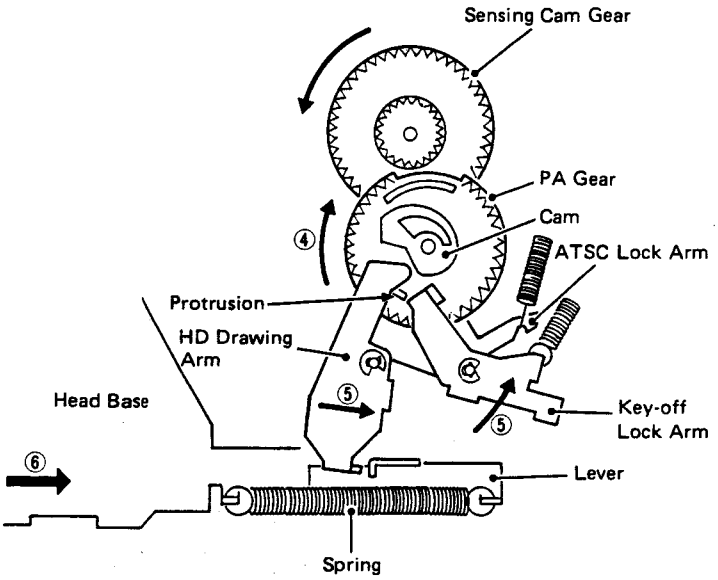


Fig. 12

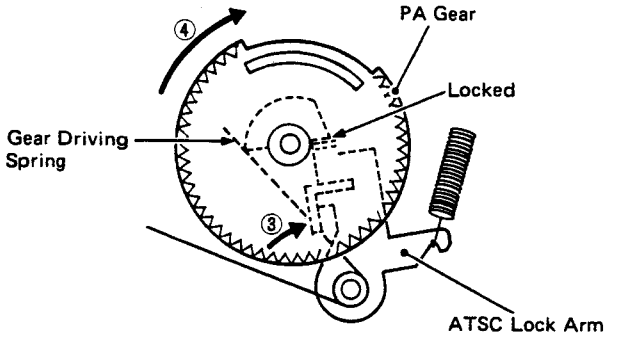


Fig. 13

(10) With Music Search (MS) (Fig. 14)

The key-off lock arm is pushed toward the outer periphery of PA gear by its cam. As a result, the key-off lock lever shifts along the direction of arrow ⑦, and the tip of solenoid attached at the end of lock lever is pulled in and gets locked into the solenoid (the solenoid is turned by motor switch).

Without MS (Fig. 15)

The key-off lock arm is pushed toward the outer periphery of PA gear.

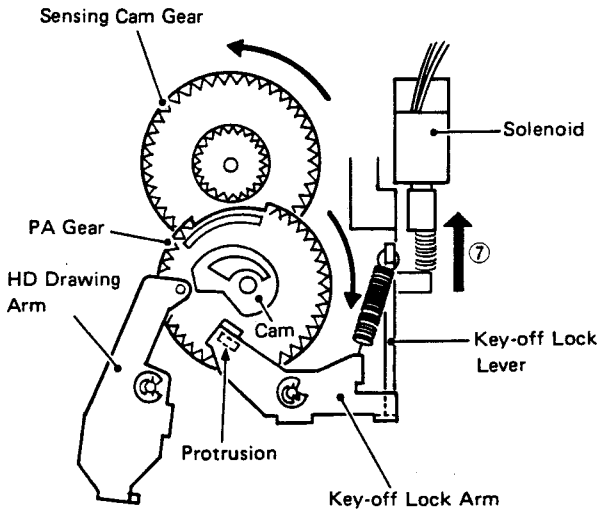


Fig. 14 Stopped state after turning through about 1 rotation (with MS)

(11) The key-off lock arm engages on the protrusion of PA gear, and concurrently the turning force of sensing cam gear is lost at the no-teeth part PA gear, causing the PA gear to halt.

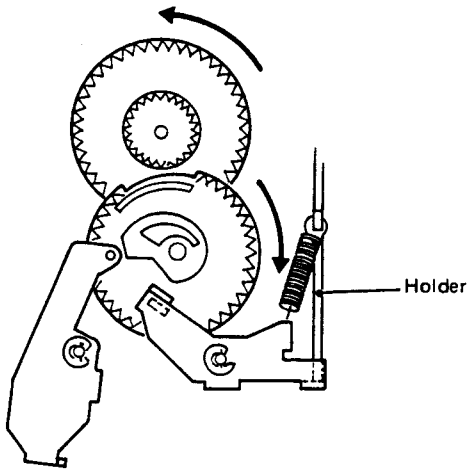


Fig. 15 Stopped state after turning through about 1 rotation (without MS)

(12) Through a lever & spring, the HD drawing arm causes the head base to shift along the direction of arrow ⑥, in turn drawing out the HD. This movement of head base is accompanied by the following operation.

(13) The spring A attached to head base causes the pinch roller to begin movement.

(14) Point A of head base shifts the ratchet along arrow direction ⑧, causing the FWD reel to get detached from it.

(15) As the FWD pinch roller runs forward, arm A moves along the direction of arrow ⑨, causing arm B to get locked on FWD reel.

(16) Point C of head base pushes against the pin of REW gear, disengaging the REW gear from REV reel.

(17) Point B of head base pushes arm B along arrow direction ⑩, making the FWD reel free.

(18) Spring A causes either the FWD or REV pinch roller to contact the capstan, depending on the existing status (FWD PLAY or REV PLAY) before the mechanism came to halt.

(19) As point D of head base pushes against arm unit (idler), the play gear engages onto either the FWD or REV reel, depending on the existing status before the mechanism to halt.

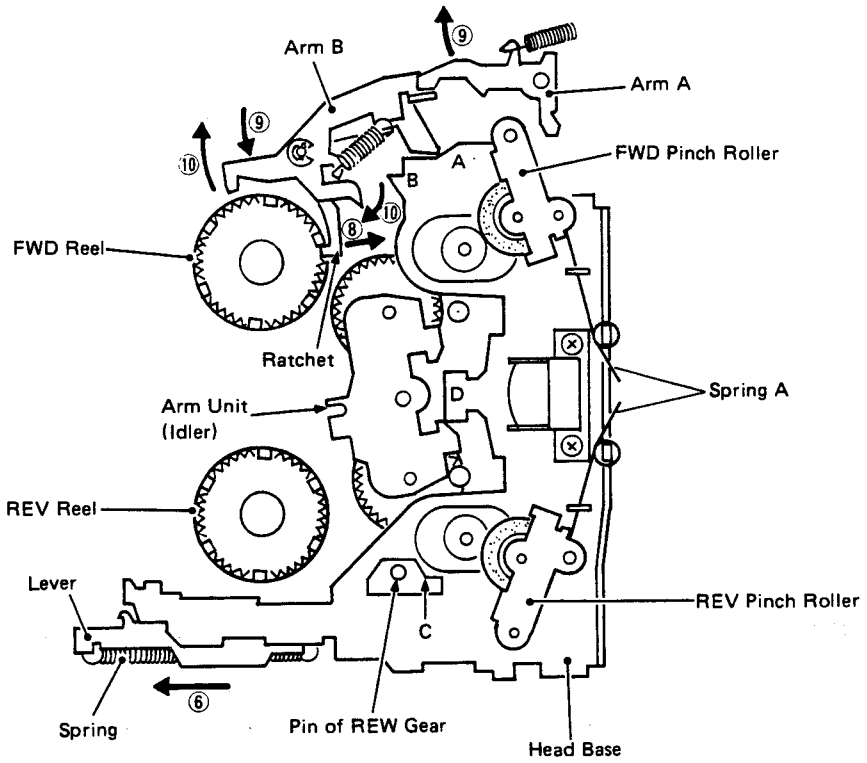


Fig. 16

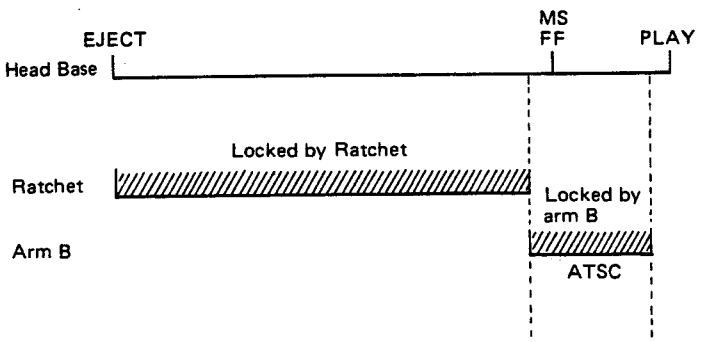


Fig. 17 FWD Reel locking timing

● Sensing Operation (Fig. 18, 19, 20)

○ Auto

1. While playing, since the sensing lever shifts laterally as given in above step (5), the cam of sensing cam gear never pushes against the sensing lever. Upon reaching the end of tape, the cam pushes against sensing lever, and point E goes in to push the arm along arrow direction ⑪.
2. The arm contacts the stopper of FR gear to stop the gear from running. Since the FR gear receives the force along arrow direction ⑫ of spring A, through REV pinch roller & arm (FR), it always tends to rotate along arrow direction ⑬.
3. As soon as the arm disengages from stopper in above step 1, the FR gear engages with sensing cam gear, causing the arm to rotate until contacting the opposite side stopper.
4. The rotation of FR gear sends the arm (FR) toward arrow direction ⑭, in turn switching over the pinch rollers. This switch over is done by the movement of arm (FR), including that of the arm unit (idler) also.

○ Manual

1. When the manual direction switch over lever of Fig. 18 is pushed, the arm moves along arrow direction ⑪. Further operation is identical to that in auto.
2. If the manual direction switch over lever is held pushed, the inner protrusion of FR gear as shown in Fig. 19 contacts spring B of the arm, and stops after turning through half rotation.

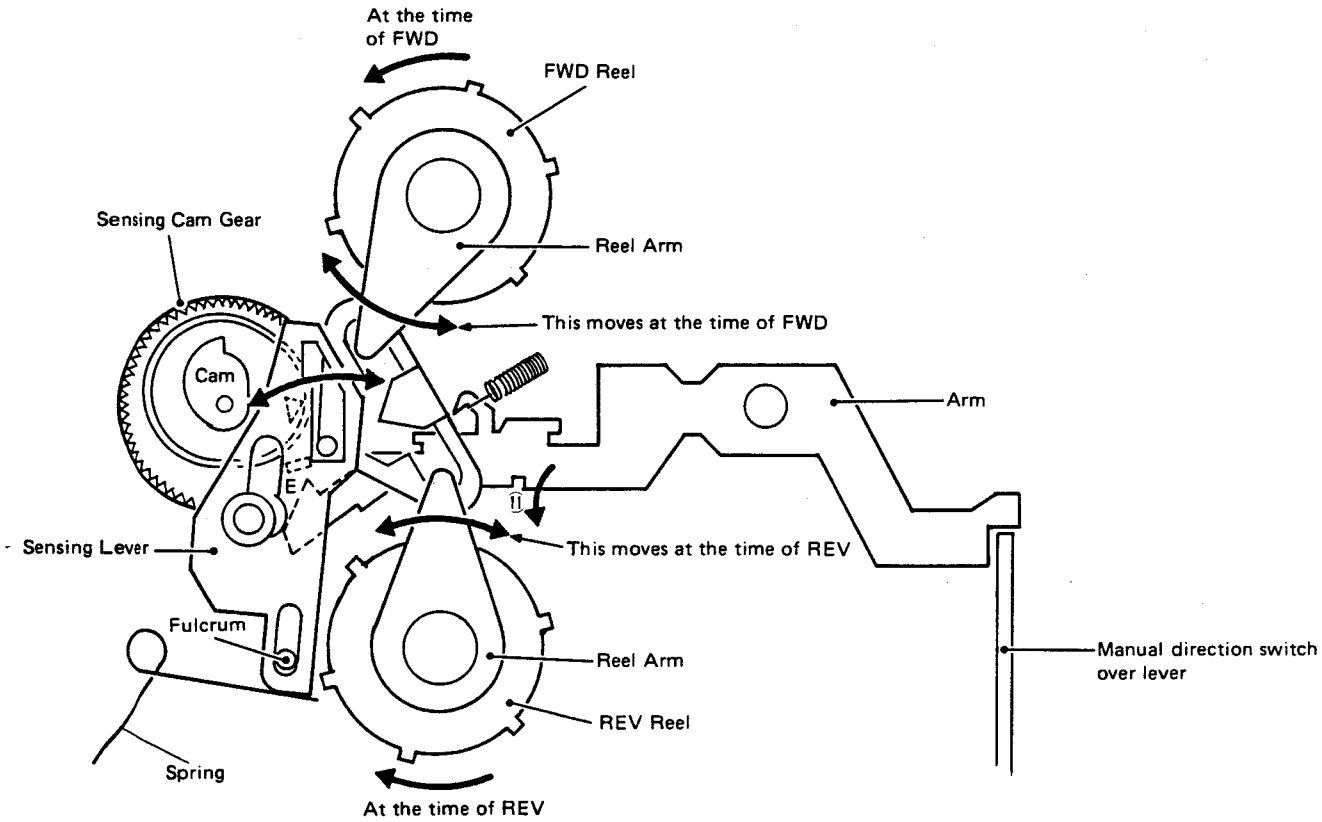


Fig. 18

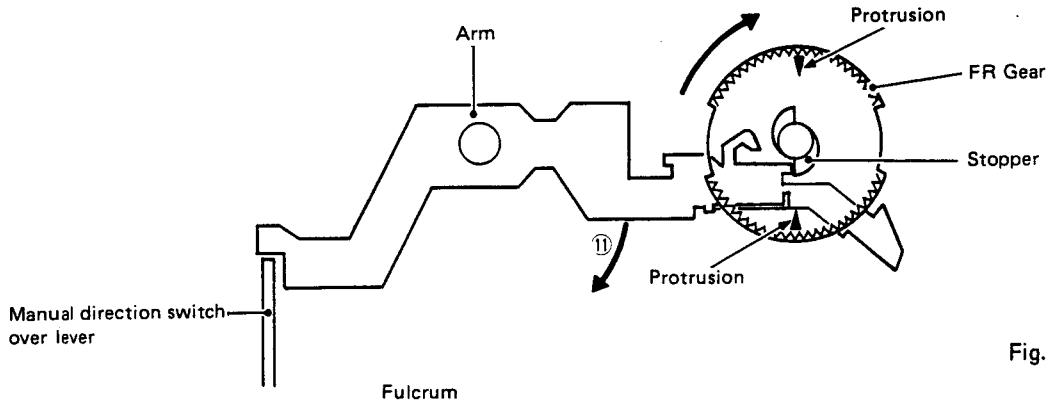


Fig. 19

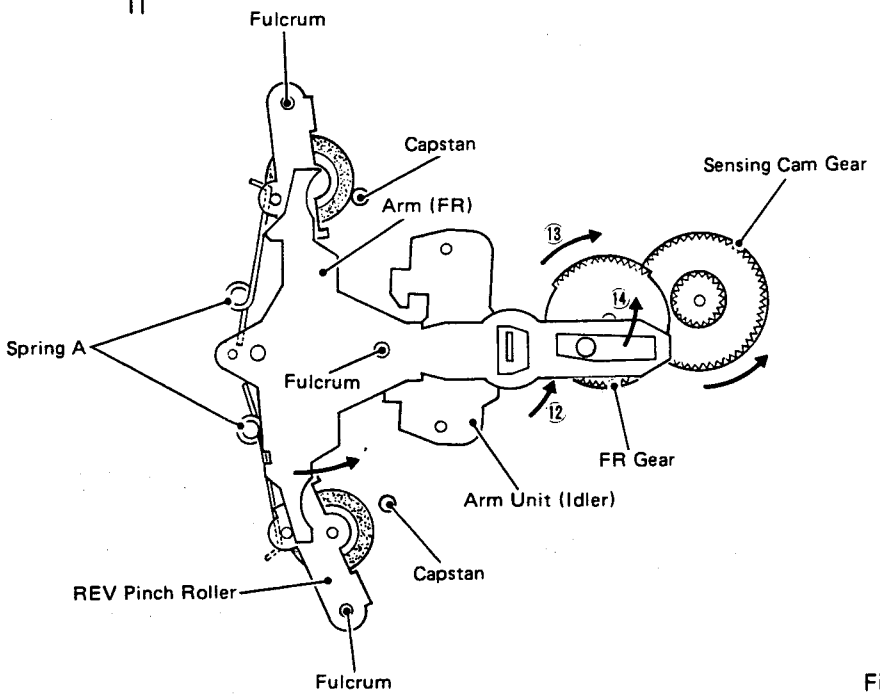


Fig. 20

- **Sensing release Mechanism (when drawing out the Head)**

1. If the sensing lever is held pushed by sensing cam gear until the head is drawn out, after the lock of PA gear has been released by it, FWD/REV switch over takes place.

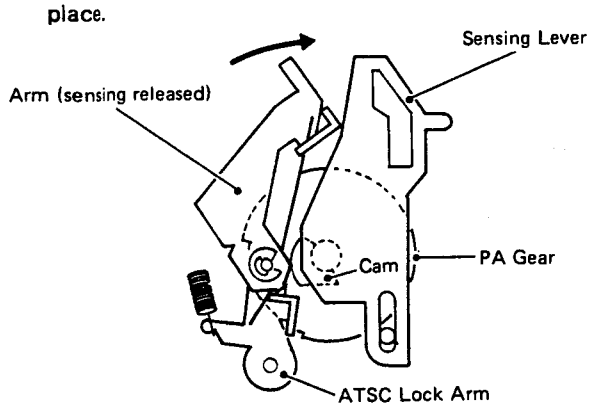


Fig. 21 Drawing out the HD (Sensing released)

2. To prevent this, the arm (sensing released) is held pushed toward arrow direction, by the cam of PA gear, through ATSC lock arm, as shown in Fig. 21. This prevents FWD/REV switch over by keeping the cam of sensing cam gear away from the sensing lever.

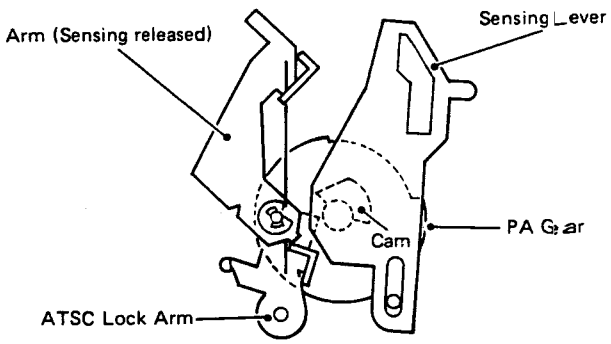


Fig. 22 At the time of PLAY (Sensing operation)

• FF/REW Mechanism (when running FWD)

1. When FF, REW lever is pushed, arm D causes the head base to return upto FF/REW position. The lever makes arm C to rotate along arrow direction ⑫ , which then turns ON the mute switch. When pushed further, it gets locked by arm C.
2. The returning of head base also causes the arm unit (idler) to return, and the play gear is detached from the reel.
3. When REW lever is pushed, the head base returns, causing the pin of REW gear also to return to original position, whereby the flywheel (REV), REW gear, and REV reel get engaged together, instating REW mode.
4. When FF lever is pushed, the arm unit (FF) gets pressed, causing the flywheel (FWD), FWD reel, and FF gear to get engaged, again instating FF mode. At this time, REW gear detaches from REV reel and flywheel (REV) due to spring tension.
5. At the time of MS operation, the solenoid turns from OFF to ON while in FF/REW state, and play mode is instated as the head base in returned.

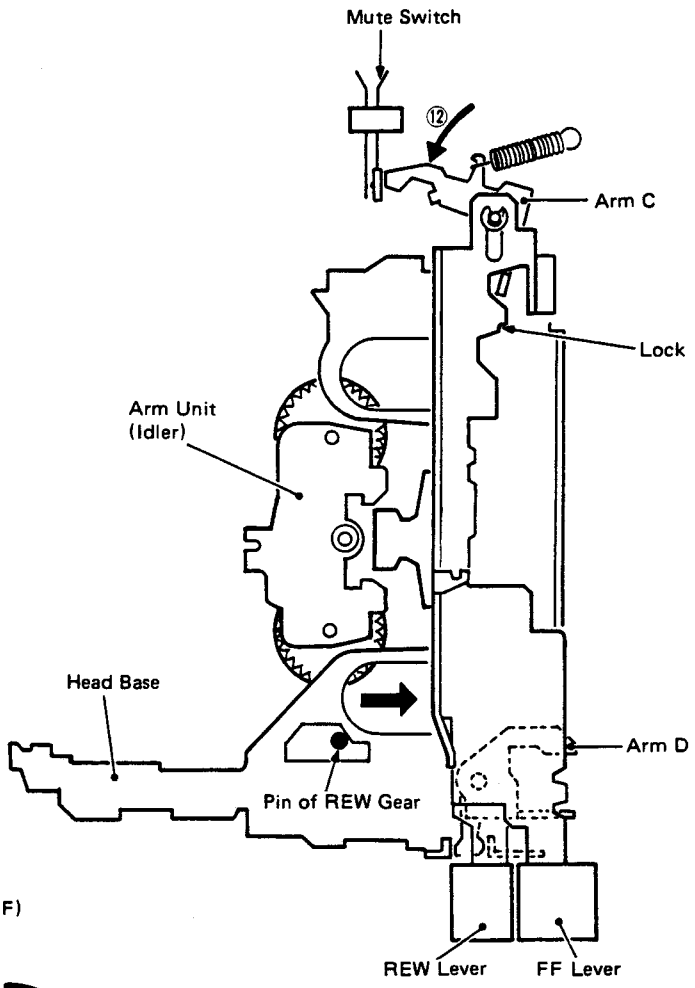


Fig. 23

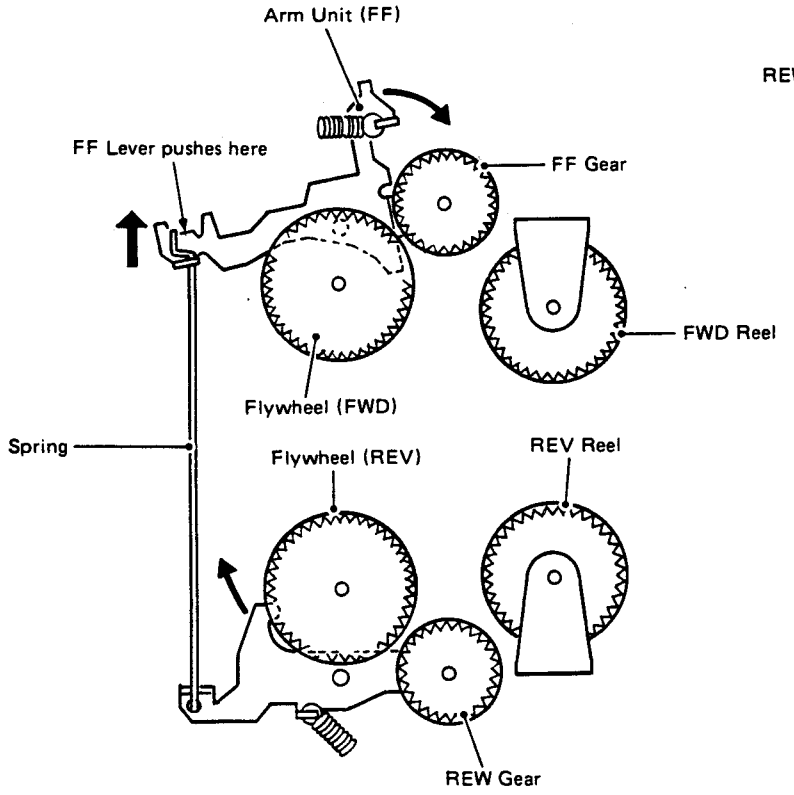


Fig. 24 At the time of FF

● EJECT

1. If FF, REW levers are concurrently pushed, the arm gets caught at point F, sending the lever toward arrow direction.
2. Point G pushes against the arm of Fig. 23, causing the head base to return back.
3. As the head base returns, arm E of Fig. 26 moves along arrow direction (13), in turn pushing the key-off lock arm. Thereby, the lock of PA gear gets released, and play state is cancelled.
4. Point H of the lever of Fig. 25 pushes against the cassette holder to eject the cassette tape.

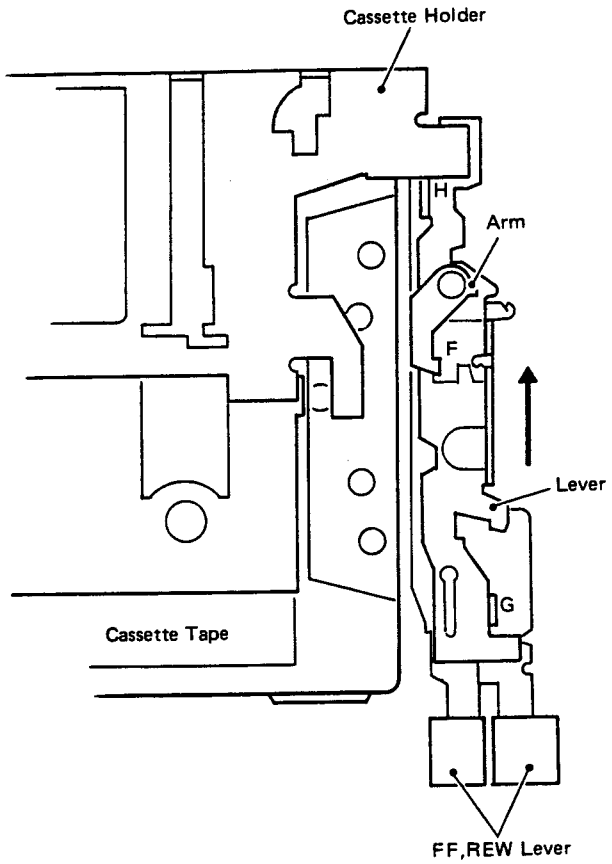


Fig. 25

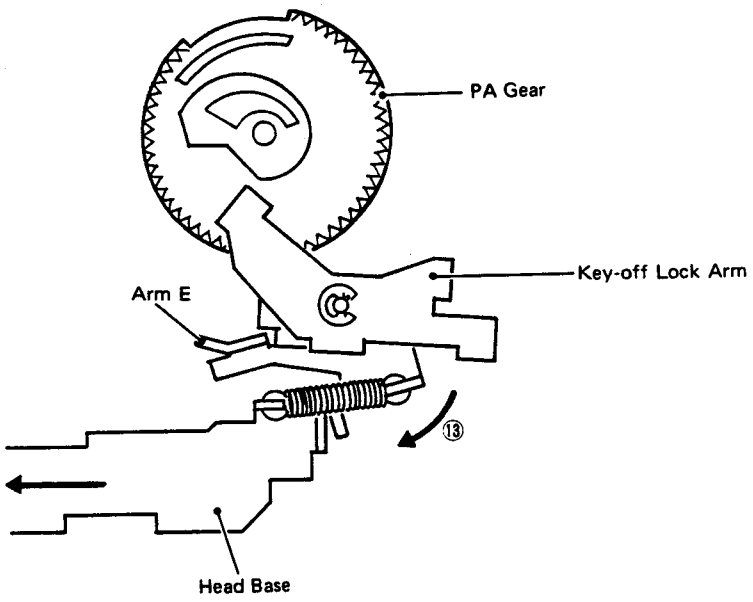


Fig. 26

3. ADJUSTMENT

3.1 AZIMUTH ADJUSTMENT (Fig. 27)

- **To Adjust**

1. Play "A" side of STD-341A (10kHz, −20dB). Adjust each screw for maximum output in forward and reverse directions.
2. Play "B" side in forward and reverse directions to confirm adjustment.

3.2 TAPE SPEED ADJUSTMENT (Fig. 27)

- **To Adjust**

1. Reproduce STD-301 (3kHz, −10dB). Adjust the semi-fixed resistor so that the frequency counter shows 3,010Hz (+30Hz, −30Hz).

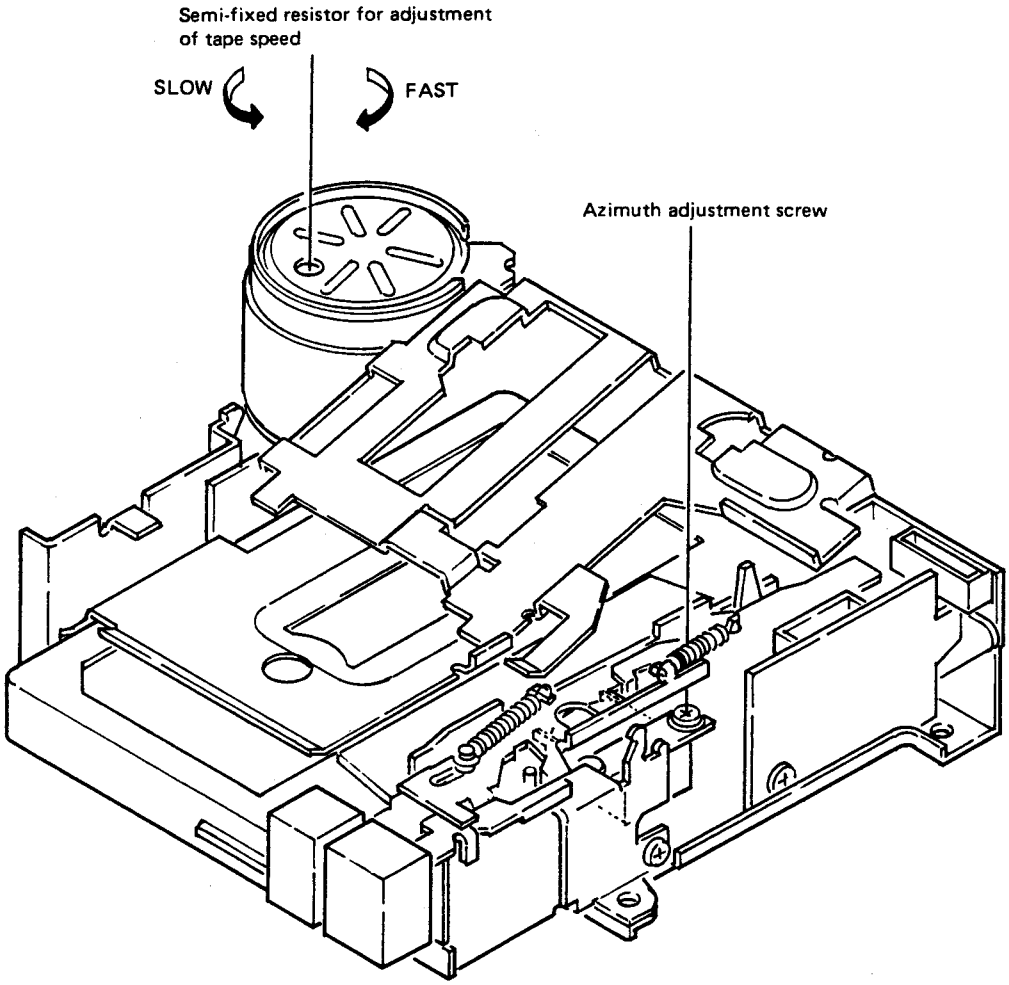
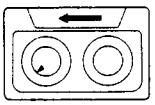
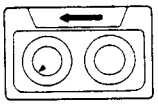
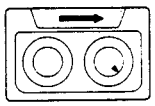
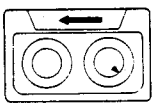


Fig. 27

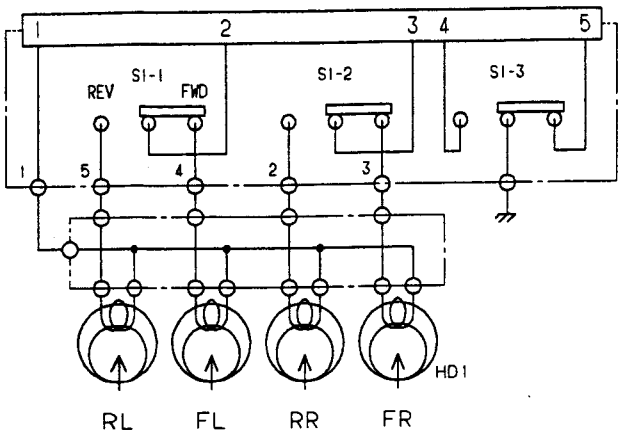
3.3 CHECK POINTS OF CASSETTE MECHANISM

Confirm the following items when replacing parts of the cassette mechanism.	■ Tape speed deviation: $3{,}000^{+90}_{-30}$ Hz (4.76cm/s $^{+3}_{-1}$ %) Using an STD-301, measure the speed at the start and end of winding and take the maximum value. Measuring time shall be 5 ∿ 6 seconds.	■ Wow and flutter: Less than 0.20% (WRMS) Using an STD-301, measure the wow and flutter at the start and end of winding and take the maximum value. If values indicated by the pointer vary considerably, adjust to 70% of the minimum and maximum values. Measuring time shall be 5 ∿ 6 seconds.
■ Fast forward and rewinding time: 95∿115 seconds Using a C-60, set to fast forward and rewind, and measure the time with a stop watch.	■ Winding torque: 39∿65g•cm  Using a cassette type torque meter (100 g•cm), measure the minimum value while in the play mode. Measuring time shall be 5 ∿ 6 seconds.	■ F.F. torque: 110∿70g•cm  Using a cassette type torque meter (120 g•cm), measure the value when the tape stops in the F.F. mode.
■ REW torque: 110∿70g•cm  Using a cassette type torque meter (120 g•cm), measure the value when the tape stops in the REW mode.	■ Back tension torque: 2∿6g•cm  After setting in the REW mode without loading a cassette tape for 5 minutes, measure the back tension torque in the play mode, using a cassette type torque meter.	■ Cassette loading force: Less than 1.5kg Push the center of the cassette and measure the force with a tension meter (3 kg).
■ Eject force: Less than 4kg Using a tension meter (5 kg), measure eject force from play mode to point at which cassette is ejected.		

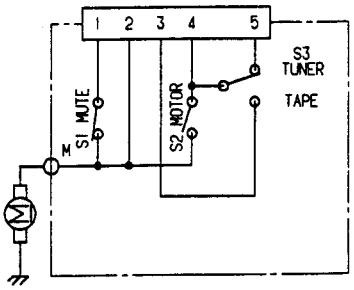
4. CIRCUIT DIAGRAM & PATTERNS

- **Without MS**

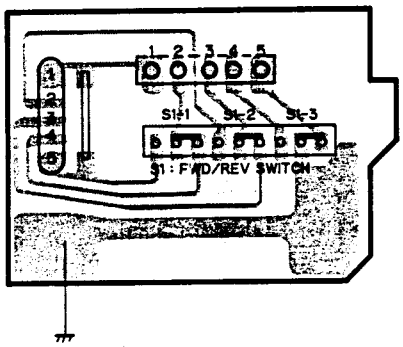
P.C. BOARD UNIT



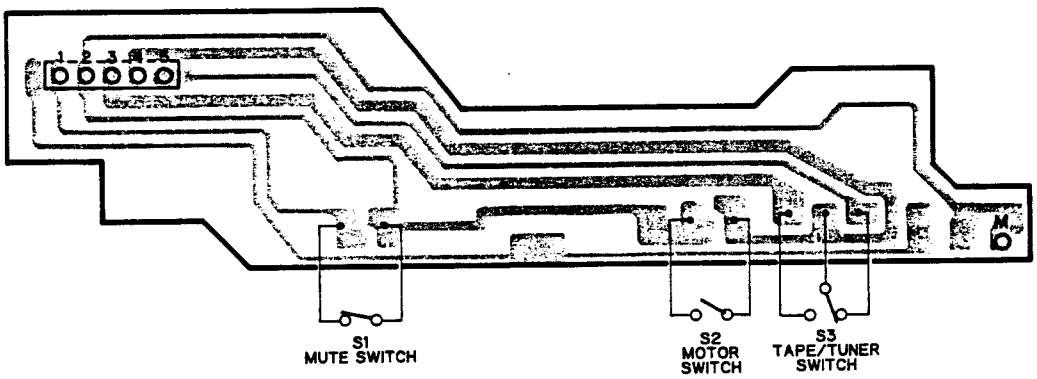
SWITCH P.C. BOARD



P.C. BOARD UNIT

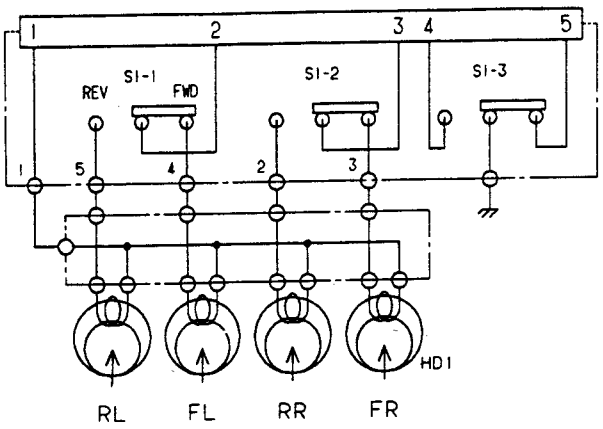


SWITCH P.C. BOARD

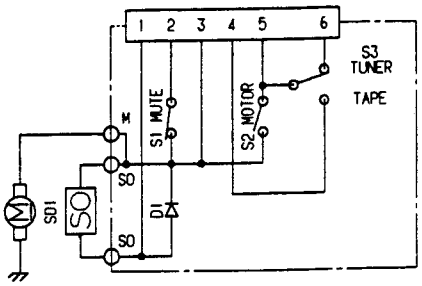


- **With MS**

P.C. BOARD UNIT



SWITCH P.C. BOARD



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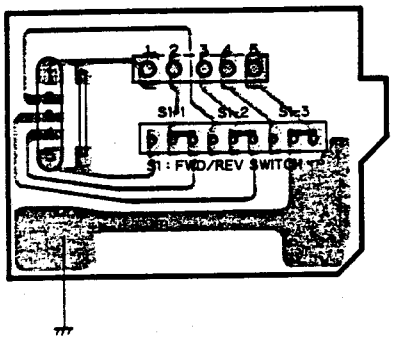

SWITCH P.C. BOARD